

#### TCEQ - A/R RECEIPT REPORT BY ACCOUNT NUMBER

	Fee Code	Ref#1	Check Number	CC Type			
	Account#	Ref#2	Card Auth.	Tran Code	Slip Key		
Description	Account Name	Paid In By	User Data	Rec Code	Document#	Tran Date	Tran Amount
NOTICE FEES-WUP- WATER USE PERM	PTGU PTGU	M555127B		N	BS00114523 D5802407	10-MAR-25	-\$459.66
	NOTICE FEES WUP WATER USE PERMITS	RAMBLE INVESTMENT LP	VTORREZ	CK			

Total (Fee Code):

-\$459.66

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#### TCEQ - A/R RECEIPT REPORT BY ACCOUNT NUMBER

TCEQ 10-MAR-25 12:45 PM

	Fee Code	Ref#1	Check Number	CC Type			
	Account#	Ref#2	Card Auth.	Tran Code	Slip Key		
Description	Account Name	Paid In By	User Data	Rec Code	Document#	Tran Date	Tran Amount
WTR USE PERMITS	WUP	M555127A	50181		BS00114523	10-MAR-25	-\$1,348.50
	WUP		031025	N	D5802407		
	WATER USE PERMITS	RAMBLE	VTORREZ	CK			
		INVESTMENT					
		LP					
				metel.	(Fee Code):		-\$1,348.50
				TOTAL	(ree code):		41,510.50



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Page 8 of 9

# Kimley » Horn

March 7th, 2025

Texas Commission on Environmental Quality Water Availability Division, MC-160 12100 Park 35 Circle Austin, TX 78753

RE: Ramble Water Rights Permit Application

City of Celina, TX

Dear TCEQ Representative:

Ramble Investment, LP is proposing a mixed-use development north of County Road 96 and east of Preston Road in the City of Celina. This permit application addresses one existing NRCS reservoir and one proposed regional detention pond. Both ponds are proposed to store water for irrigation and will lose water to evaporation. Groundwater wells are proposed to be constructed to maintain the water levels in the ponds, so that State Water is not impounded.

A pre-application meeting was held January 10th, 2025.

Enclosed is the preliminary application to obtain a Water Rights Permit for this proposed project in the City of Celina, Texas.

The following items are included with this submittal package:

- · Administrative Information Checklist
- Administrative Information Report
- Hillwood LP Signature Authority
- Technical Information Report
- Worksheets: 1.0, 2.0, 3.0, 4.0, 4.1, 5.0, 6.0, 7.0 and 8.0
- USGS Map
- Drainage Area Map
- Photographs and Photographs Key Map
- Property Deeds
- Letter Notice to Governing Bodies
- Certified Mail Receipts
- Groundwater Availability Report
- Evaporation Calculations
- Irrigation Calculations
- Groundwater District Coordination
- Dam Safety Coordination

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If you have any questions, please contact me at 2995.

or (469) 473-



Sincerely,

M. H. Alderman

Nadia Alderman, P.E., CFM

# TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

### TCEQ WATER RIGHTS PERMITTING APPLICATION

### ADMINISTRATIVE INFORMATION CHECKLIST

Complete and submit this checklist for each application. See Instructions Page 5.

APPLICANT(S): Ramble Investment, LP	APPLICANT(S): Ramble Investment, LP	
-------------------------------------	-------------------------------------	--

Indicate whether the following items are included in your application by writing either Y (for yes) or N (for no) next to each item (all items are <u>not</u> required for every application).

Y/N		Y/N		
Y	_Administrative Information Report	Y	_Worksheet 3.0	
N/A	_Additional Co-Applicant Information	Y	_Additional W.S. 3.0	for each Point
N/A	_Additional Co-Applicant Signature Pages	Y	_Recorded Deeds for	Diversion Points
Y	_Written Evidence of Signature Authority	N	_Consent for Diversi	on Access
Y	Technical Information Report	Y	Worksheet 4.0	
Y	_USGS Map (or equivalent)	N	_TPDES Permit(s)	
Y	Map Showing Project Details	N	_WWTP Discharge Da	ıta
Y	Original Photographs	N	Groundwater Well P	ermit Coordination provided, will send permit when received
Y		N	 _Signed Water Supply	
Y	Worksheet 1.0	Y	Worksheet 4.1	
Y	 _Recorded Deeds for Irrigated Land	Y	 _Worksheet 5.0	
N	_Consent for Irrigated Land	N	_Addendum to Work	sheet 5.0
N	_Worksheet 1.1	Y	_Worksheet 6.0	
N	Addendum to Worksheet 1.1	N	 _Water Conservation	Plan(s)
N	Worksheet 1.2	N	– _Drought Contingeno	
Y	Worksheet 2.0	N		
$\overline{Y}$	Additional W.S. 2.0 for Each Reservoir	Y		
Y	Dam Safety Documents	Y	 _Accounting Plan	BECEIVED
Y	_Notice(s) to Governing Bodies	Y	Worksheet 8.0	MAR 13 2025
Y	Recorded Deeds for Inundated Land	Y	Fees	Water Availability Division
N	_Consent for Inundated Land	Y	_Public Involvement I	

# 2. APPLICANT INFORMATION (Instructions, Page. 6)

1	Applicant						
(	Indicate the number of Ap (Include a copy of this sec	plicants/Co-Applicants $\frac{1}{1}$ tion for each Co-Applicant, if any	7)				
1	What is the Full Legal Name of the individual or entity (applicant) applying for this permit?						
10	Ramble Investment, LP						
	(If the Applicant is an entity, the legal name must be spelled exactly as filed with the Texas Secretary of State, County, or in the legal documents forming the entity.)  If the applicant is currently a customer with the TCEQ, what is the Customer Number (CN)? You may search for your CN on the TCEQ website at <a href="http://www15.tceq.texas.gov/crpub/index.cfm?fuseaction=cust.CustSearch">http://www15.tceq.texas.gov/crpub/index.cfm?fuseaction=cust.CustSearch</a>						
1							
(	CN :	( leave blank if you do no	ot yet have a CN).				
ä	What is the name and title of the person or persons signing the application? Unless an application is signed by an individual applicant, the person or persons must submit written evidence that they meet the signatory requirements in 30 TAC § 295.14.						
	First/Last Name: Elaine Ford  Title: Senior Vice President						
J	Title: Senior Vice Preside	ent					
\ \ 1	Title: Senior Vice President Have you provided written eas an attachment to this applicant's mail may verify the address on the https://tools.usps.com/go/Z	ent evidence meeting the signatory rec plication? Y/N <u>Y</u> ing address as recognized by the I he USPS website at ZipLookupAction!input.action.	quirements in 30 TAC § 295.				
\ \ 1	Title: Senior Vice President  Have you provided written eas an attachment to this applicant's mail may verify the address on the https://tools.usps.com/go/Z  Name: Ramble Investme	ent evidence meeting the signatory rec plication? Y/N Y ing address as recognized by the I he USPS website at ZipLookupAction!input.action. ent, LP	quirements in 30 TAC § 295.				
7	Title: Senior Vice President Have you provided written eas an attachment to this applicant's mail may verify the address on the https://tools.usps.com/go/Z	ent evidence meeting the signatory rec plication? Y/N Y ing address as recognized by the I he USPS website at ZipLookupAction!input.action. ent, LP	quirements in 30 TAC § 295. US Postal Service (USPS)? You				
I	Title: Senior Vice President  Have you provided written eas an attachment to this applicant's mail may verify the address on the https://tools.usps.com/go/Z  Name: Ramble Investme  Mailing Address: 3000 T	evidence meeting the signatory reciplication? Y/N Y ing address as recognized by the Uhe USPS website at ZipLookupAction!input.action.ent, LP State: TX	quirements in 30 TAC § 295. US Postal Service (USPS)? You				

### ADMINISTRATIVE INFORMATION REPORT

The following information is required for all new applications and amendments.

\*\*\*Applicants are REQUIRED to schedule a pre-application meeting with TCEQ Staff to discuss Applicant's needs prior to submitting an application. Call the Water Rights Permitting Team to schedule a meeting at (512) 239-4600.

1.	TYPE	OF A	PPLICA	TION	(Instructions,	Page.	6)
	alle alle alle	- ·			(mano en en en en en en en	~	$\sim$ ,

Indicate, by marking X, next to the following authorizations you are seeking.

## 3. APPLICATION CONTACT INFORMATION (Instructions, Page. 9)

If the TCEQ needs additional information during the review of the application, who should be contacted? Applicant may submit their own contact information if Applicant wishes to be the point of contact.

First and Last Name: Nadia Alderman	****	
Title: Professional Engineer		
Organization Name: Kimley-Horn and Ass	ociates	
Mailing Address: 6160 Warren Parkway, St	uite 210	
City: Frisco	State:	ZIP Code:
Phone Number: 469-473-2995		
Fax Number: N/A		
E-mail Address		

This section applies only if there are multiple Owners of the same authorization. Unless otherwise requested, Co-Owners will each receive future correspondence from the Commission regarding this water right (after a permit has been issued), such as notices and water use reports. Multiple copies will be sent to the same address if Co-Owners share the same address. Complete this section if there will be multiple owners and all owners agree to let one owner receive correspondence from the Commission. Leave this section blank if you would like all future notices to be sent to the address of each of the applicants listed in section 2 above.

I/We authorize all future notices be r	eceived on my/our behalf	at the following:
First and Last Name:		
Title:		
Organization Name:		
Mailing Address:		
City:	State:	ZIP Code:
Phone Number:		
Fax Number:		
E-mail Address:		

### 5. MISCELLANEOUS INFORMATION (Instructions, Page. 9)

a. The application will not be processed unless all delinquent fees and/or penalties owed to the TCEQ or the Office of the Attorney General on behalf of the TCEQ are paid in accordance with the Delinquent Fee and Penalty Protocol by all applicants/co-applicants. If you need assistance determining whether you owe delinquent penalties or fees, please call the Water Rights Permitting Team at (512) 239-4600, prior to submitting your application.

1.	Does Applicant or Co-Applicant owe any fees to the TCEQ? Yes / No $NO$		
	If yes, provide the following information:		
	Account number:	Amount past due:	
2. Does Applicant or Co-Applicant owe any penalties to the TCEQ? Yes / No NO			
	If <b>yes</b> , please provide the following information:		
	Enforcement order number:	Amount past due:	

- b. If the Applicant is a taxable entity (corporation or limited partnership), the Applicant must be in good standing with the Comptroller or the right of the entity to transact business in the State may be forfeited. See Texas Tax Code, Subchapter F. Applicant's may check their status with the Comptroller at <a href="https://mycpa.cpa.state.tx.us/coa/">https://mycpa.cpa.state.tx.us/coa/</a>
  Is the Applicant or Co-Applicant in good standing with the Comptroller? Yes / No YES
- c. The commission will not grant an application for a water right unless the applicant has submitted all Texas Water Development Board (TWDB) surveys of groundwater and surface water use if required. See TWC §16.012(m) and 30 TAC § 297.41(a)(5). Applicants should check survey status on the TWDB website prior to filing:

  <a href="https://www3.twdb.texas.gov/apps/reports/WU\_REP/SurveyStatus\_PriorThreeYears">https://www3.twdb.texas.gov/apps/reports/WU\_REP/SurveyStatus\_PriorThreeYears</a>
  Applicant has submitted all required TWDB surveys of groundwater and surface water?

  Yes / No YES\_\_\_\_\_

6. SIGNATURE PAGE (Instructions, Page. 11)							
Applicant:  I, Elaine Food Senior Via Prisident (Typed or printed name) (Title)							
certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.							
I further certify that I am authorized under Title 30 Texas Administrative Code §2 and submit this document and I have submitted written evidence of my signature	I further certify that I am authorized under Title 30 Texas Administrative Code §295.14 to sign and submit this document and I have submitted written evidence of my signature authority.						
Signature: Date: 1-22-2 (Use blue ink)	-5_						
Subscribed and Sworn to before me by the said on this							
Notary Public  MARY GRACE MENDENHALL Notary ID #132031111 My Commission Expires June 9, 2027  County, Texas	RECEIVED MAR 13 2025 Water Availability Division						
If the Application includes Co-Applicants, each Applicant and Co-Applicant mus	st submit an						

original, separate signature page

# TECHNICAL INFORMATION REPORT WATER RIGHTS PERMITTING

This Report is required for applications for new or amended water rights. Based on the Applicant's responses below, Applicants are directed to submit additional Worksheets (provided herein). A completed Administrative Information Report is also required for each application.

Date of pre-application meeting: January 10, 2025



**State Water is:** The water of the ordinary flow, underflow, and tides of every flowing river, natural stream, and lake, and of every bay or arm of the Gulf of Mexico, and the storm water, floodwater, and rainwater of every river, natural stream, canyon, ravine, depression, and watershed in the state. TWC § 11.021.

- a. Applicant requests a new appropriation (diversion or impoundment) of State Water? Y / N Y
- b. Applicant requests an amendment to an existing water right requesting an increase in the appropriation of State Water or an increase of the overall or maximum combined diversion rate?  $Y / N_{N}$  (If yes, indicate the Certificate or Permit number: N/A

If Applicant answered yes to (a) or (b) above, does Applicant also wish to be considered for a term permit pursuant to TWC § 11.1381? Y / N

c. Applicant requests to extend an existing Term authorization or to make the right permanent? Y / N N (If yes, indicate the Term Certificate or Permit number: N/A)

If Applicant answered yes to (a), (b) or (c), the following worksheets and documents are required:

- Worksheet 1.0 Quantity, Purpose, and Place of Use Information Worksheet
- Worksheet 2.0 Impoundment/Dam Information Worksheet (submit one worksheet for each impoundment or reservoir requested in the application)
- **Worksheet 3.0 Diversion Point Information Worksheet** (submit one worksheet for each diversion point and/or one worksheet for the upstream limit and one worksheet for the downstream limit of each diversion reach requested in the application)
- Worksheet 5.0 Environmental Information Worksheet
- Worksheet 6.0 Water Conservation Information Worksheet
- Worksheet 7.0 Accounting Plan Information Worksheet
- Worksheet 8.0 Calculation of Fees
- Fees calculated on Worksheet 8.0 see instructions Page. 34.
- Maps See instructions Page. 15.
- Photographs See instructions Page. 30.

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Additionally, if Applicant wishes to submit an alternate source of water for the project/authorization, see Section 3, Page 3 for Bed and Banks Authorizations (Alternate sources may include groundwater, imported water, contract water or other sources).

Additional Documents and Worksheets may be required (see within).

### 2. Amendments to Water Rights. TWC § 11.122 (Instructions, Page. 12)

This section should be completed if Applicant owns an existing water right and Applicant requests to amend the water right. If Applicant is not currently the Owner of Record in the TCEQ Records, Applicant must submit a Change of Ownership Application (TCEQ-10204) prior to submitting the amendment Application or provide consent from the current owner to make the requested amendment. If the application does not contain consent from the current owner to make the requested amendment, TCEQ will not begin processing the amendment application until the Change of Ownership has been completed and will consider the Received Date for the application to be the date the Change of Ownership is completed. See instructions page. 6.

Water Right (Certificate or Permit) number you a	re requesting to amend: N/A
Applicant requests to sever and combine existing Certificates into another Permit or Certificate? Y	
List of water rights to sever	Combine into this ONE water right
N/A	N/A

a. Applicant requests an amendment to an existing water right to increase the amount of the appropriation of State Water (diversion and/or impoundment)? Y / N\_N/A\_\_

If yes, application is a new appropriation for the increased amount, complete Section 1 of this Report (PAGE. 1) regarding New or Additional Appropriations of State Water.

b. Applicant requests to amend existing Term authorization to extend the term or make the water right permanent (remove conditions restricting water right to a term of years)? Y / NN/A

If yes, application is a new appropriation for the entire amount, complete Section 1 of this Report (PAGE. 1) regarding New or Additional Appropriations of State Water.

- c. Applicant requests an amendment to change the purpose or place of use or to add an additional purpose or place of use to an existing Permit or Certificate? Y / N\_N/A\_If yes, submit:
  - Worksheet 1.0 Quantity, Purpose, and Place of Use Information Worksheet
  - Worksheet 1.2 Notice: "Marshall Criteria"
- d. Applicant requests to change: diversion point(s); or reach(es); or diversion rate? Y / NN/A *If yes, submit:* 
  - **Worksheet 3.0 Diversion Point Information Worksheet** (submit one worksheet for each diversion point or one worksheet for the upstream limit and one worksheet for the downstream limit of each diversion reach)
  - **Worksheet 5.0 Environmental Information** (Required for <u>any</u> new diversion points that are not already authorized in a water right)
- e. Applicant requests amendment to add or modify an impoundment, reservoir, or dam? Y / NN/A

*If yes, submit:* **Worksheet 2.0 - Impoundment/Dam Information Worksheet** (submit one worksheet for each impoundment or reservoir)

f. Other - Applicant requests to change any provision of an authorization not mentioned above? Y / NN/A \_\_\_\_ If yes, call the Water Availability Division at (512) 239-4600 to discuss.

#### Additionally, all amendments require:

- Worksheet 8.0 Calculation of Fees; and Fees calculated see instructions Page. 34
- Maps See instructions Page. 15.
- Additional Documents and Worksheets may be required (see within).

### 3. Bed and Banks. TWC § 11.042 (Instructions, Page 13)

a. Pursuant to contract, Applicant requests authorization to convey, stored or conserved water to the place of use or diversion point of purchaser(s) using the bed and banks of a watercourse? TWC § 11.042(a). Y/N\_\_\_\_

If yes, submit a signed copy of the Water Supply Contract pursuant to 30 TAC §§ 295.101 and 297.101. Further, if the underlying Permit or Authorization upon which the Contract is based does not authorize Purchaser's requested Quantity, Purpose or Place of Use, or Purchaser's diversion point(s), then either:

- 1. Purchaser must submit the worksheets required under Section 1 above with the Contract Water identified as an alternate source; or
- 2. Seller must amend its underlying water right under Section 2.
- b. Applicant requests to convey water imported into the state from a source located wholly outside the state using the bed and banks of a watercourse? TWC § 11.042(a-1). Y / N\_N\_

*If yes, submit worksheets 1.0, 2.0, 3.0, 4.0, 5.0, 7.0, 8.0, Maps and fees from the list below.* 

c. Applicant requests to convey Applicant's own return flows derived from privately owned groundwater using the bed and banks of a watercourse? TWC § 11.042(b). Y / NN\_

If yes, submit worksheets 1.0, 2.0, 3.0, 4.0, 5.0, 7.0, 8.0, Maps, and fees from the list below.

d. Applicant requests to convey Applicant's own return flows derived from surface water using the bed and banks of a watercourse? TWC § 11.042(c). Y / N N

If yes, submit worksheets 1.0, 2.0, 3.0, 4.0, 5.0, 6.0, 7.0, 8.0, Maps, and fees from the list below.

\*Please note, if Applicant requests the reuse of return flows belonging to others, the Applicant will need to submit the worksheets and documents under Section 1 above, as the application will be treated as a new appropriation subject to termination upon direct or indirect reuse by the return flow discharger/owner.

e. Applicant requests to convey water from any other source, other than (a)-(d) above, using the bed and banks of a watercourse? TWC § 11.042(c). Y / N Y

If yes, submit worksheets 1.0, 2.0, 3.0, 4.0, 5.0, 7.0, 8.0, Maps, and fees from the list below. Worksheets and information:

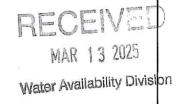
- Worksheet 1.0 Quantity, Purpose, and Place of Use Information Worksheet
- Worksheet 2.0 Impoundment/Dam Information Worksheet (submit one worksheet for each impoundment or reservoir owned by the applicant through which water will be conveyed or diverted)
- Worksheet 3.0 Diversion Point Information Worksheet (submit one worksheet for the downstream limit of each diversion reach for the proposed conveyances)

- Worksheet 4.0 Discharge Information Worksheet (for each discharge point)
- Worksheet 5.0 Environmental Information Worksheet
- Worksheet 6.0 Water Conservation Information Worksheet
- Worksheet 7.0 Accounting Plan Information Worksheet
- Worksheet 8.0 Calculation of Fees; and Fees calculated see instructions Page. 34
- Maps See instructions Page. 15.
- Additional Documents and Worksheets may be required (see within).



a. Provide information describing how this application addresses a water supply need in a manner that is consistent with the state water plan or the applicable approved regional water plan for any area in which the proposed appropriation is located or, in the alternative, describe conditions that warrant a waiver of this requirement (not required for applications to use groundwater-based return flows). Include citations or page numbers for the State and Regional Water Plans, if applicable. Provide the information in the space below or submit a supplemental sheet entitled "Addendum Regarding the State and Regional Water Plans":

Ramble is located within the City of Celina which is part of the Region C Planning Group for the State's Water Plan. This application proposes use of groundwater wells to replace water loss due to evaporation and irrigation. This approach is consistent with the 2022 State Water Plan which recommends groundwater wells as a way to meet water supply needs (see Chapter 6, pg 84).



b. Did the Applicant perform its own Water Availability Analysis? Y /  $N_{\underline{\hspace{1cm}}}$ 

If the Applicant performed its own Water Availability Analysis, provide electronic copies of any modeling files and reports.

c. Does the application include required Maps? (Instructions Page. 15) Y /  $N_Y$ 

# **WORKSHEET 1.0** Quantity, Purpose and Place of Use

### New Authorizations (Instructions, Page. 16)

Submit the following information regarding quantity, purpose and place of use for requests for

new or addit	nonal appropriations of State water of	or bed alld balles authori	zations.		
Quantity (acrefeet) (Include losses for Bed and Banks)	or  Alternate Source (River Basin)  or  Alternate Source *each alternate source (and new appropriation based on return flows of others) also requires completion of Worksheet 4.0	Purpose(s) of Use	Place(s) of Use  *requests to move state water out of basin also require completion of Worksheet 1.1 Interbasin Transfer		
854	Groundwater (Aquifer TBD) (Trinity River Basin)	Recreation; Irrigation	Collin County		
			RECEIVE MAR 13 2025		
Water Availability Division Total amount of water (in acre-feet) to be used annually (include losses for Bed and Banks applications)					
f the Purpose of Use is Agricultural/Irrigation for any amount of water, provide:					

, Abstract No. .

a.	Location Information Regarding the Lands to be Irrigated
	i) Applicant proposes to irrigate a total of 214.41acres in any one year. This acreage i
	all of or part of a larger tract(s) which is described in a supplement attached to thi
	application and contains a total of 1,425 acres in Collin County, TX
	ii) Location of land to be irrigated: In theOriginal Survey No.

A copy of the deed(s) or other acceptable instrument describing the overall tract(s) with the recording information from the county records must be submitted. Applicant's name must match deeds.

If the Applicant is not currently the sole owner of the lands to be irrigated, Applicant must submit documentation evidencing consent or other documentation supporting Applicant's right to use the land described.

Water Rights for Irrigation may be appurtenant to the land irrigated and convey with the land unless reserved in the conveyance. 30 TAC § 297.81.

Multiple surveys. See attached Tract Surveys (Attachment C.1)

	Complete	e this section for ea	pose or Place of U ch requested amendm , complete the followin	ent changing, adding,	
Qı (	uantity (acre- feet)	Existing Purpose(s) of Use	Proposed Purpose(s) of Use*	Existing Place(s) of Use	Proposed Place(s) of Use**
und	er "Propo the requ	osed Purpose(s) of U est is to add additio	nal place(s) of use, incl		
	194	osed Place(s) of Use. he purpose of use in	" 1 the Rio Grande Basin	may require conversio	n. 30 TAC § 303.43.
A		ıral rights, provide	Agricultural purpose on the following location in		
i.	all of	ation and contains	er tract(s) which is de	acres in any one escribed in a supplem _acres in	e year. This acreage is nent attached to this
ii.		on of land to be , Abstract N	irrigated: In the o		_Original Survey No.
	fi tl n	om the county rec ne Applicant is not	e) describing the overa ords must be submitte currently the sole own entation evidencing co ed.	d. Applicant's name in the lands to be	nust match deeds. If irrigated, Applicant
			igation may be appure		

Submit Worksheet 1.1, Interbasin Transfers, for any request to change the place of use N/A which moves State Water to another river basin.

See Worksheet 1.2, Marshall Criteria, and submit if required. N/A

See Worksheet 6.0, Water Conservation/Drought Contingency, and submit if required. N/A

# WORKSHEET 2.0 Impoundment/Dam Information

This worksheet **is required** for any impoundment, reservoir and/or dam. Submit an additional Worksheet 2.0 for each impoundment or reservoir requested in this application.

If there is more than one structure, the numbering/naming of structures should be consistent throughout the application and on any supplemental documents (e.g., maps).

1	. Stor	rage Information (Instructions, Page. 21)
a.	Official U	JSGS name of reservoir, if applicable: SCS Reservoir Site 18A
b.		unount of water (in acre-feet) impounded by structure at normal maximum g level: 779
c.	The impo	oundment is on-channel X or off-channel (mark one)
	i. ii.	Applicant has verified on-channel or off-channel determination by contacting Surface Water Availability Team at (512) 239-4600? Y / N $_{\_}$ Y If on-channel, will the structure have the ability to pass all State Water inflows that Applicant does not have authorization to impound? Y / N $_{\_}$
d.	Is the im	poundment structure already constructed? Y/N_Y
		<ol> <li>Date of Construction: 1970</li> <li>Was it constructed to be an exempt structure under TWC § 11.142? Y / N N a. If Yes, is Applicant requesting to proceed under TWC § 11.143? Y / N N/A b. If No, has the structure been issued a notice of violation by TCEQ? Y / N N</li> <li>Is it a U.S. Natural Resources Conservation Service (NRCS) (formerly Soil Conservation Service (SCS)) floodwater-retarding structure? Y / NY</li> </ol>
	ii.	a. If yes, provide the Site No. 18a and watershed project name Little Elm and Laterals; WS S b. Authorization to close "ports" in the service spillway requested? Y / N_Y  For any proposed new structures or modifications to structures: N/A
		<ol> <li>Applicant must contact TCEQ Dam Safety Section at (512) 239-0326, prior to submitting an Application. Applicant has contacted the TCEQ Dam Safety Section regarding the submission requirements of 30 TAC, Ch. 299? Y/N_N Provide the date and the name of the Staff Person_N/A</li> <li>As a result of Applicant's consultation with the TCEQ Dam Safety Section, TCEQ has confirmed that:</li> </ol>
		<ul> <li>a. No additional dam safety documents required with the Application. Y / N</li> <li>b. Plans (with engineer's seal) for the structure required. Y / N</li> <li>c. Engineer's signed and sealed hazard classification required. Y / N</li> <li>d. Engineer's statement that structure complies with 30 TAC, Ch. 299 Rules</li> </ul>

required. Y / N\_\_\_

3.	Applicants shall give notice by certified mail to each member of the governing
	body of each county and municipality in which the reservoir, or any part of the
	reservoir to be constructed, will be located. (30 TAC § 295.42). Applicant must
	submit a copy of all the notices and certified mailing cards with this
	Application. Notices and cards are included? $Y / N_{\underline{Y}}$

- iii. Additional information required for **on-channel** storage:
  - 1. Surface area (in acres) of on-channel reservoir at normal maximum operating level: 13
  - 2. Based on the Application information provided, Staff will calculate the drainage area above the on-channel dam or reservoir. If Applicant wishes to also calculate the drainage area they may do so at their option. Applicant has calculated the drainage area. Y/N Y

    If yes, the drainage area is 1.1066 sq. miles.

    (If assistance is needed, call the Surface Water Availability Team prior to submitting the application, (512) 239-4600).

<b>L</b> .	Structu	re Lo	catic	on (Instruc	uons, P	age. 23)	
4004000			-	V ~	86 - 24 VIII		

a. On Waterc	ourse (if on-channel) (US	GS name): Unnamed Tributary to Li	ittle Elm Creek
b. Zip Code: ַ	75009		- B
c. In the MAF	RTHA HERRON	Original Survey No. N/A	, Abstract No. <u>085415</u>
Collin	County, Texas.	,	

d. A point on the centerline of the dam (on-channel) or anywhere within the impoundment (off-channel) is:

Latitude <u>33.345543</u>

°N, Longitude 96.768467 °W.

\*Provide Latitude and Longitude coordinates in decimal degrees to at least six decimal places

- i. Indicate the method used to calculate the location (examples: Handheld GPS Device, GIS, Mapping Program): <u>Autodesk Civil 3D</u>
- ii. Map submitted which clearly identifies the Impoundment, dam (where applicable), and the lands to be inundated. See instructions Page. 15. Y /  $N\underline{Y}$



<sup>\*</sup> A copy of the deed(s) with the recording information from the county records must be submitted describing the tract(s) that include the structure and all lands to be inundated.

<sup>\*\*</sup>If the Applicant is not currently the sole owner of the land on which the structure is or will be built and sole owner of all lands to be inundated, Applicant must submit documentation evidencing consent or other documentation supporting Applicant's right to use the land described.

# WORKSHEET 2.0 Impoundment/Dam Information

This worksheet **is required** for any impoundment, reservoir and/or dam. Submit an additional Worksheet 2.0 for each impoundment or reservoir requested in this application.

If there is more than one structure, the numbering/naming of structures should be consistent throughout the application and on any supplemental documents (e.g., maps).

tŀ	rroughout	the application and on any supplemental documents (e.g., maps).
1	. Sto	rage Information (Instructions, Page. 21)
a.	Official U	JSGS name of reservoir, if applicable: Proposed Tract C Pond (Unofficial Name)
b.		amount of water (in acre-feet) impounded by structure at normal maximum g level: 75
c.	The impo	oundment is on-channel_Xor off-channel(mark one)
	i. ii.	Applicant has verified on-channel or off-channel determination by contacting Surface Water Availability Team at (512) 239-4600? Y / N_Y If on-channel, will the structure have the ability to pass all State Water inflows that Applicant does not have authorization to impound? Y / N_Y
d.	Is the im	poundment structure already constructed? Y/NN_
	i.	For already constructed <b>on-channel</b> structures:
		1. Date of Construction:
		<ul> <li>2. Was it constructed to be an exempt structure under TWC § 11.142? Y / N</li> <li>a. If Yes, is Applicant requesting to proceed under TWC § 11.143? Y / N</li> <li>b. If No, has the structure been issued a notice of violation by TCEQ? Y / N</li> </ul>
		3. Is it a U.S. Natural Resources Conservation Service (NRCS) (formerly Soil Conservation Service (SCS)) floodwater-retarding structure? Y / N a. If yes, provide the Site No and watershed project name; b. Authorization to close "ports" in the service spillway requested? Y / N
	ii.	For any proposed new structures or modifications to structures:
		<ol> <li>Applicant must contact TCEQ Dam Safety Section at (512) 239-0326, prior to submitting an Application. Applicant has contacted the TCEQ Dam Safety Section regarding the submission requirements of 30 TAC, Ch. 299? Y/NY Provide the date and the name of the Staff Person Johnny Cosgrove; 12/30/24</li> </ol>
		<ol> <li>As a result of Applicant's consultation with the TCEQ Dam Safety Section, TCEQ has confirmed that:         <ul> <li>a. No additional dam safety documents required with the Application. Y / N N</li> <li>b. Plans (with engineer's seal) for the structure required. Y / N Y</li> <li>c. Engineer's signed and sealed hazard classification required. Y / N Y</li> <li>d. Engineer's statement that structure complies with 30 TAC, Ch. 299 Rules required. Y / N Y</li> </ul> </li> </ol>

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	3. Applicants <b>shall</b> give notice by certified mail to each member of the governing body of each county and municipality in which the reservoir, or any part of the reservoir to be constructed, will be located. (30 TAC § 295.42). Applicant must submit a copy of all the notices and certified mailing cards with this Application. Notices and cards are included? Y / N_Y_
iii.	Additional information required for on-channel storage:
	1. Surface area (in acres) of on-channel reservoir at normal maximum operating level: 9
	2. Based on the Application information provided, Staff will calculate the drainage area above the on-channel dam or reservoir. If Applicant wishes to also calculate the drainage area they may do so at their option. Applicant has calculated the drainage area. Y/N Y If yes, the drainage area is 0.8609 sq. miles. (If assistance is needed, call the Surface Water Availability Team prior to submitting the application, (512) 239-4600).
2. Stru	cture Location (Instructions, Page. 23)
a. On Waterc	ourse (if on-channel) (USGS name): Unnamed Tributary to Long Branch
b. Zip Code: ַ	75009
c. In the <u>Ben</u> Collin	jamin Haile Original Survey No. , Abstract No. <u>085397</u> , County, Texas.
subm	opy of the deed(s) with the recording information from the county records must be itted describing the tract(s) that include the structure and all lands to be dated.
	he Applicant is not currently the sole owner of the land on which the structure is

documentation evidencing consent or other documentation supporting Applicant's right to use the land described.

d. A point on the centerline of the dam (on-channel) or anywhere within the impoundment (off-channel) is:

Latitude 33.343325 °N, Longitude 96.736641

\*Provide Latitude and Longitude coordinates in decimal degrees to at least six decimal places

- i. Indicate the method used to calculate the location (examples: Handheld GPS Device, GIS, Mapping Program): Autodesk Civil 3D
- Map submitted which clearly identifies the Impoundment, dam (where applicable), and the lands to be inundated. See instructions Page. 15. Y / N Y ii.



Water Availability Division

# WORKSHEET 3.0 DIVERSION POINT (OR DIVERSION REACH) INFORMATION

This worksheet **is required** for each diversion point or diversion reach. Submit one Worksheet 3.0 for **each** diversion point and two Worksheets for **each** diversion reach (one for the upstream limit and one for the downstream limit of each diversion reach).

The numbering of any points or reach limits should be consistent throughout the application and on supplemental documents (e.g., maps).

1.	Divers	ion Information (Instructions, Page. 24	4)
a.	This Works	neet is to add new (select 1 of 3 below):	
	2Upsti	rsion Point No. Diversion Number 1 ream Limit of Diversion Reach No. astream Limit of Diversion Reach No.	
b.		ate of Diversion for <b>this new point</b> MA gpm (gallons per minute)	_cfs (cubic feet per second)
C.	If yes, su	oint share a diversion rate with other points? <b>Y</b> / <b>N</b> bmit Maximum Combined Rate of Diversion for al  cachescfs orgpm	
d.	** An inc	nents, is Applicant seeking to increase combined decrease in diversion rate is considered a new appropertion of Section 1, New or Additional Appropriation of	riation and would require
e.		e appropriate box to indicate diversion location as cation is existing or proposed): N/A	nd indicate whether the
	Check one		Write: Existing or Proposed
		Directly from stream	
	V	From an on-channel reservoir	Proposed
		From a stream to an on-channel reservoir	
		Other method (explain fully, use additional sheets if necessary)	
f.	above the d	e Application information provided, Staff will calc iversion point (or reach limit). If Applicant wishes ea, you may do so at their option.	
	Applicant h	as calculated the drainage area. Y/N_Y	
	(If assista	e drainage area is <u>1.1066</u> sq. miles. ance is needed, call the Surface Water Availability T ag application)	Team at (512) 239-4600, prior to

	Diversion Location (Instructions, Page 25)
a.	On watercourse (USGS name):
Э.	Zip Code: 75009
с.	Location of point: In the Martha Heron Original Survey No. N/A No. 085415 County, Texas.
	A copy of the deed(s) with the recording information from the county records must be submitted describing tract(s) that include the diversion structure.
	For diversion reaches, the Commission cannot grant an Applicant access to property that the Applicant does not own or have consent or a legal right to access, the Applicant will be required to provide deeds, or consent, or other documents supporting a legal right to use the specific points when specific diversion points within the reach are utilized. Other documents may include, but are not limited to a recorded easement, a land lease, a contract, or a citation to the Applicant's right to exercise eminent domain to acquire access.
d.	Point is at:  Latitude 33.346796
e.	Indicate the method used to calculate the location (examples: Handheld GPS Device, GIS, Mapping Program): <u>Autodesk Civil 3D</u>
f.	Map submitted must clearly identify each diversion point and/or reach. See instructions Page. 15.

g. If the Plan of Diversion is complicated and not readily discernable from looking at the map, attach additional sheets that fully explain the plan of diversion.



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## WORKSHEET 3.0 DIVERSION POINT (OR DIVERSION REACH) INFORMATION

This worksheet **is required** for each diversion point or diversion reach. Submit one Worksheet 3.0 for **each** diversion point and two Worksheets for **each** diversion reach (one for the upstream limit and one for the downstream limit of each diversion reach).

The numbering of any points or reach limits should be consistent throughout the application and on supplemental documents (e.g., maps).

1.	Divers	ion Information (Instructions, Page. 24	4)
		neet is to add new (select 1 of 3 below):	
	2Upsti	sion Point No. Diversion Number 2 ream Limit of Diversion Reach No. astream Limit of Diversion Reach No.	
b.		ate of Diversion for <b>this new point</b> N/Agpm (gallons per minute)	_cfs (cubic feet per second)
c.	If yes, su	oint share a diversion rate with other points? Y / Normal bmit Maximum Combined Rate of Diversion for all bachescfs orgpm	
d.	** An inc	nents, is Applicant seeking to increase combined of rease in diversion rate is considered a new appropon of Section 1, New or Additional Appropriation of	riation and would require
e.		e appropriate box to indicate diversion location as cation is existing or proposed): N/A	nd indicate whether the
	Check one	-	Write: Existing or Proposed
		Directly from stream	
	V	From an on-channel reservoir	Proposed
		From a stream to an on-channel reservoir	
		Other method (explain fully, use additional sheets if necessary)	
f.	above the d	e Application information provided, Staff will calc eversion point (or reach limit). If Applicant wishes ea, you may do so at their option.	
	Applicant h	as calculated the drainage area. Y / NY	
	(If assista	e drainage area is <u>1.1066</u> sq. miles. ance is needed, call the Surface Water Availability ( ag application)	Team at (512) 239-4600, prior to

2.	
a.	On watercourse (USGS name): Unnamed Tributary to Little Elm Creek
b.	Zip Code: 75009
c.	Location of point: In the Martha Heron Original Survey No. N/A Abstract No. 085415 County, Texas.
	A copy of the deed(s) with the recording information from the county records must be submitted describing tract(s) that include the diversion structure.
	For diversion reaches, the Commission cannot grant an Applicant access to property that the Applicant does not own or have consent or a legal right to access, the Applicant will be required to provide deeds, or consent, or other documents supporting a legal right to use the specific points when specific diversion points within the reach are utilized. Other documents may include, but are not limited to a recorded easement, a land lease, a contract, or a citation to the Applicant's right to exercise eminent domain to acquire access.
d.	Point is at:  Latitude 33.346464 °N, Longitude 96.766322 °W.  Provide Latitude and Longitude coordinates in decimal degrees to at least six decimal places
e.	Indicate the method used to calculate the location (examples: Handheld GPS Device, GIS, Mapping Program): Autodesk Civil 3D
f.	Map submitted must clearly identify each diversion point and/or reach. See instructions Page. 15.
g.	If the Plan of Diversion is complicated and not readily discernable from looking at the map, attach additional sheets that fully explain the plan of diversion.



# WORKSHEET 3.0 DIVERSION POINT (OR DIVERSION REACH) INFORMATION

This worksheet **is required** for each diversion point or diversion reach. Submit one Worksheet 3.0 for **each** diversion point and two Worksheets for **each** diversion reach (one for the upstream limit and one for the downstream limit of each diversion reach).

The numbering of any points or reach limits should be consistent throughout the application and on supplemental documents (e.g., maps).

1.	Divers	tion Information (Instructions, Page. 24	<del>1</del> )
a.	This Works	neet is to add new (select 1 of 3 below):	
	2Upsti	rsion Point No. Diversion Number 3 ream Limit of Diversion Reach No. Instream Limit of Diversion Reach No.	
b.		ate of Diversion for <b>this new point</b> gpm (gallons per minute)	_cfs (cubic feet per second)
c.	If yes, su	oint share a diversion rate with other points? Y / N bmit Maximum <b>Combined</b> Rate of Diversion for all eachescfs orgpm	
d.	For amendn	nents, is Applicant seeking to increase combined d	liversion rate? Y / N N/A
0	completi	crease in diversion rate is considered a new appropon of Section 1, New or Additional Appropriation of	f State Water.
e.		e appropriate box to indicate diversion location an cation is existing or proposed): N/A	nd maicate whether the
	Check one		Write: Existing or Proposed
		Directly from stream	
	V	From an on-channel reservoir	Proposed
		From a stream to an on-channel reservoir	
		Other method (explain fully, use additional sheets if necessary)	
f.	above the d	e Application information provided, Staff will calc iversion point (or reach limit). If Applicant wishes ea, you may do so at their option.	
	Applicant h	as calculated the drainage area. Y/N_Y	
	(If assista	e drainage area is <u>0.8609</u> sq. miles. ance is needed, call the Surface Water Availability T ng application)	Team at (512) 239-4600, prior to

2.	Diversion Location (Instructions, Page 25)
	On watercourse (USGS name): Unnamed Tributary to Long Branch
	Zip Code: 75009
c.	Location of point: In the Benjamin Haile Original Survey No. N/A , Abstract No. 085397 County, Texas.
	A copy of the deed(s) with the recording information from the county records must be submitted describing tract(s) that include the diversion structure.
	For diversion reaches, the Commission cannot grant an Applicant access to property that the Applicant does not own or have consent or a legal right to access, the Applicant will be required to provide deeds, or consent, or other documents supporting a legal right to use the specific points when specific diversion points within the reach are utilized. Other documents may include, but are not limited to a recorded easement, a land lease, a contract, or a citation to the Applicant's right to exercise eminent domain to acquire access.
d.	Point is at:  Latitude 33.343195 Provide Latitude and Longitude coordinates in decimal degrees to at least six decimal places
e.	Indicate the method used to calculate the location (examples: Handheld GPS Device, GIS, Mapping Program): Autodesk Civil 3D
f.	Map submitted must clearly identify each diversion point and/or reach. See instructions Page. 15.

g. If the Plan of Diversion is complicated and not readily discernable from looking at the map, attach additional sheets that fully explain the plan of diversion.



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# WORKSHEET 3.0 DIVERSION POINT (OR DIVERSION REACH) INFORMATION

This worksheet **is required** for each diversion point or diversion reach. Submit one Worksheet 3.0 for **each** diversion point and two Worksheets for **each** diversion reach (one for the upstream limit and one for the downstream limit of each diversion reach).

The numbering of any points or reach limits should be consistent throughout the application and on supplemental documents (e.g., maps).

1.	Divers	ion Information (Instructions, Page. 24	1)
	<ol> <li>X Diver</li> <li>Upstr</li> </ol>	neet is to add new (select 1 of 3 below): sion Point No. Diversion Number 4 ream Limit of Diversion Reach No. astream Limit of Diversion Reach No.	
b.		ate of Diversion for <b>this new point</b> N/A gpm (gallons per minute)	_cfs (cubic feet per second)
c.	If yes, su	oint share a diversion rate with other points? Y / Normal Maximum Combined Rate of Diversion for all eachescfs orgpm	
	** An inc	nents, is Applicant seeking to increase combined derease in diversion rate is considered a new approper on of Section 1, New or Additional Appropriation of	riation and would require f State Water.
e.		e appropriate box to indicate diversion location an cation is existing or proposed): N/A	nd indicate whether the
	Check one		Write: Existing or Proposed
		Directly from stream	
	V	From an on-channel reservoir	Proposed
		From a stream to an on-channel reservoir	
		Other method (explain fully, use additional sheets if necessary)	
f.	above the d	e Application information provided, Staff will calc iversion point (or reach limit). If Applicant wishes ea, you may do so at their option.	
	Applicant h	as calculated the drainage area. Y/N_Y	
	(If assista	e drainage area is <u>0.8609</u> sq. miles. ance is needed, call the Surface Water Availability T ag application)	Team at (512) 239-4600, prior to

2.	Diversion Location (Instructions, Page 25)
a.	On watercourse (USGS name): Unnamed Tributary to Long Branch
	Zip Code: 75009
c.	Location of point: In the Benjamin Haile Original Survey No. N/A No. 085397 Collin County, Texas.
	A copy of the deed(s) with the recording information from the county records must be submitted describing tract(s) that include the diversion structure.
	For diversion reaches, the Commission cannot grant an Applicant access to property that the Applicant does not own or have consent or a legal right to access, the Applicant will be required to provide deeds, or consent, or other documents supporting a legal right to use the specific points when specific diversion points within the reach are utilized. Other documents may include, but are not limited to a recorded easement, a land lease, a contract, or a citation to the Applicant's right to exercise eminent domain to acquire access.
d.	Point is at:  Latitude 33.342843  N, Longitude 96.738005  Provide Latitude and Longitude coordinates in decimal degrees to at least six decimal places

- e. Indicate the method used to calculate the location (examples: Handheld GPS Device, GIS, Mapping Program): Autodesk Civil 3D
- f. Map submitted must clearly identify each diversion point and/or reach. See instructions Page. 15.
- g. If the Plan of Diversion is complicated and not readily discernable from looking at the map, attach additional sheets that fully explain the plan of diversion.



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# WORKSHEET 4.0 DISCHARGE INFORMATION

Discharge #1

This worksheet required for any requested authorization to discharge water into a State Watercourse for conveyance and later withdrawal or in-place use. Worksheet 4.1 is also required for each Discharge point location requested. **Instructions Page. 26.** *Applicant is responsible for obtaining any separate water quality authorizations which may be required and for insuring compliance with TWC. Chapter 26 or any other applicable law.* 

compliance with TWC, Chapter 26 or any other applicable law.		
a. The purpose of use for the water being discharged will be Recreation; Irrigation		
b. Provide the amount of water that will be lost to transportation, evaporation, seepage, channel or other associated carriage losses44.2 acre-ft (% or amount) and explain the method of calculation: Calculated using TWBD maximum monthly lake surface evaporation and pan coefficients for Quad 411. See attached calculations.		
c. Is the source of the discharged water return flows? Y / N $\underline{\hspace{0.1cm}}$ N $\underline{\hspace{0.1cm}}$ If yes, provide the following information:		
<ol> <li>The TPDES Permit Number(s)(attach a copy of the current TPDES permit(s))</li> </ol>		
2. Applicant is the owner/holder of each TPDES permit listed above? Y / $N$		
PLEASE NOTE: If Applicant is not the discharger of the return flows, or the Applicant is not the water right owner of the underlying surface water right, or the Applicant does not have a contract with the discharger, the application should be submitted under Section 1, New or Additional Appropriation of State Water, as a request for a new appropriation of state water. If Applicant is the discharger, the surface water right holder, or the contract holder, then the application should be submitted under Section 3, Bed and Banks.		
3. Monthly WWTP discharge data for the past 5 years in electronic format. (Attach and label as "Supplement to Worksheet 4.0").		
4. The percentage of return flows from groundwater, surface water?		
5. If any percentage is surface water, provide the base water right number(s)		
d. Is the source of the water being discharged groundwater? Y / $N_{\underline{Y}}$ If yes, provide the following information:		
1. Source aquifer(s) from which water will be pumped: *TBD (Twin Mountains)		
2. If the well has not been constructed, provide production information for wells in the same aquifer in the area of the application. See <a href="http://www.twdb.texas.gov/groundwater/data/gwdbrpt.asp">http://www.twdb.texas.gov/groundwater/data/gwdbrpt.asp</a> . Additionally, provide well numbers or identifiers <a href="Provided">Provided</a> .		
3. Indicate how the groundwater will be conveyed to the stream or reservoir.		
Anticipated to be discharged with an air gap; Additional information will be provided with groundwater permit.		
4. A copy of the groundwater well permit if it is located in a Groundwater Conservation District (GCD) or evidence that a groundwater well permit is not required.  Coordination with GCD attached, in process of obtaining permits  di. Is the source of the water being discharged a surface water supply contract? Y / N_N_  If yes, provide the signed contract(s).		
dii. Identify any other source of the water N/A		

### WORKSHEET 4.1 DISCHARGE POINT INFORMATION

This worksheet is required for **each** discharge point. Submit one Worksheet 4.1 for each discharge point. If there is more than one discharge point, the numbering of the points should be consistent throughout the application and on any supplemental documents (e.g., maps). **Instructions, Page 27.** 

### For water discharged at this location provide:

a.	The amount of water that will be discharged at this point is 212.4acre-feet per year. The discharged amount should include the amount needed for use and to compensate for any losses.
b.	Water will be discharged at this point at a maximum rate of <u>0.44</u> cfs or <u>197.5</u> gpm.
c.	Name of Watercourse as shown on Official USGS maps: <u>Unnamed Tributary to Little Elm Cre</u> ek
d.	Zip Code75009
e.	Location of point: In the MARTHA HERRON Original Survey No. N/A , Abstract No. 085415 , COLLIN County, Texas.
f.	Point is at:
	Latitude <u>33.346796</u> °N, Longitude <u>96.766226</u> °W.
	*Provide Latitude and Longitude coordinates in decimal degrees to at least six decimal places
g.	Indicate the method used to calculate the discharge point location (examples: Handheld GPS Device, GIS, Mapping Program): Autodesk Civil 3D

Map submitted must clearly identify each discharge point. See instructions Page. 15.



# WORKSHEET 4.0 DISCHARGE INFORMATION

Discharge #2

This worksheet required for any requested authorization to discharge water into a State Watercourse for conveyance and later withdrawal or in-place use. Worksheet 4.1 is also required for each Discharge point location requested. **Instructions Page. 26.** Applicant is responsible for obtaining any separate water quality authorizations which may be required and for insuring compliance with TWC. Chapter 26 or any other applicable law.

compliance with TWC, Chapter 26 or any other applicable law.		
a. The purpose of use for the water being discharged will be Recreation; Irrigation		
b. Provide the amount of water that will be lost to transportation, evaporation, seepage, channel or other associated carriage losses 44.2 acre-ft (% or amount) and explain the method of calculation: Calculated using TWBD maximum monthly lake surface evaporation and pan coefficients for Quad 411. See attached calculations.		
c. Is the source of the discharged water return flows? Y / N N If yes, provide the following information:		
1. The TPDES Permit Number(s)(attach a copy of the current TPDES permit(s))		
2. Applicant is the owner/holder of each TPDES permit listed above? Y / $N_{\_\_\_}$		
PLEASE NOTE: If Applicant is not the discharger of the return flows, or the Applicant is not the water right owner of the underlying surface water right, or the Applicant does not have a contract with the discharger, the application should be submitted under Section 1, New or Additional Appropriation of State Water, as a request for a new appropriation of state water. If Applicant is the discharger, the surface water right holder, or the contract holder, then the application should be submitted under Section 3, Bed and Banks.		
3. Monthly WWTP discharge data for the past 5 years in electronic format. (Attach and label as "Supplement to Worksheet 4.0").		
4. The percentage of return flows from groundwater, surface water?		
5. If any percentage is surface water, provide the base water right number(s)		
d. Is the source of the water being discharged groundwater? Y / $N_Y$ If yes, provide the following information:		
1. Source aquifer(s) from which water will be pumped: *TBD (Twin Mountains)		
2. If the well has not been constructed, provide production information for wells in the same aquifer in the area of the application. See <a href="http://www.twdb.texas.gov/groundwater/data/gwdbrpt.asp">http://www.twdb.texas.gov/groundwater/data/gwdbrpt.asp</a> . Additionally, provide well numbers or identifiers <a href="mailto:provided">Provided</a> .		
3. Indicate how the groundwater will be conveyed to the stream or reservoir.		
Anticipated to be discharged with an air gap; Additional information to be provided with groundwater permit.		
4. A copy of the groundwater well permit if it is located in a Groundwater Conservation District (GCD) or evidence that a groundwater well permit is not required.  Coordination with GCD attached, in process of obtaining permits		
di. Is the source of the water being discharged a surface water supply contract? Y / N_N_  If yes, provide the signed contract(s).		
dii. Identify any other source of the water N/A		

### WORKSHEET 4.1 DISCHARGE POINT INFORMATION

This worksheet is required for **each** discharge point. Submit one Worksheet 4.1 for each discharge point. If there is more than one discharge point, the numbering of the points should be consistent throughout the application and on any supplemental documents (e.g., maps). **Instructions, Page 27.** 

#### For water discharged at this location provide:

a.	The amount of water that will be discharged at this point is 212.4 acre-feet per year. The discharged amount should include the amount needed for use and to compensate for any losses.
b.	Water will be discharged at this point at a maximum rate of <u>0.44</u> cfs or <u>197.5</u> gpm.
c.	Name of Watercourse as shown on Official USGS maps: Unnamed Tributary to Little Elm Creek
d.	Zip Code <u>75009</u>
e.	Location of point: In the MARTHA HERRON Original Survey No, Abstract No. 085415, COLLIN County, Texas.
f.	Point is at:
	Latitude 33.346484 °N, Longitude 96.766322 °W.
	*Provide Latitude and Longitude coordinates in decimal degrees to at least six decimal places
g.	Indicate the method used to calculate the discharge point location (examples: Handheld GPS Device, GIS, Mapping Program): Autodesk Civil 3D
	Man submitted must clearly identify each discharge noint. See instructions Page, 15



### WORKSHEET 4.0 DISCHARGE INFORMATION

Discharge #3

This worksheet required for any requested authorization to discharge water into a State Watercourse for conveyance and later withdrawal or in-place use. Worksheet 4.1 is also required for each Discharge point location requested. **Instructions Page. 26.** Applicant is responsible for obtaining any separate water quality authorizations which may be required and for insuring compliance with TWC, Chapter 26 or any other applicable law.

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a. The purpose of use for the water being discharged will be Recreation; Irrigation
b. Provide the amount of water that will be lost to transportation, evaporation, seepage, channel or other associated carriage losses30.6 acre-ft (% or amount) and explain the method of calculation: Calculated using TWBD maximum monthly lake surface evaporation and pan coefficients for Quad 411. See attached calculations.
c. Is the source of the discharged water return flows? Y / N N If yes, provide the following information:
1. The TPDES Permit Number(s)(attach a copy of the current TPDES permit(s))
2. Applicant is the owner/holder of each TPDES permit listed above? Y / N
PLEASE NOTE: If Applicant is not the discharger of the return flows, or the Applicant is not the water right owner of the underlying surface water right, or the Applicant does not have a contract with the discharger, the application should be submitted under Section 1, New or Additional Appropriation of State Water, as a request for a new appropriation of state water. If Applicant is the discharger, the surface water right holder, or the contract holder, then the application should be submitted under Section 3, Bed and Banks.
3. Monthly WWTP discharge data for the past 5 years in electronic format. (Attach and label as "Supplement to Worksheet 4.0").
4. The percentage of return flows from groundwater, surface water?
5. If any percentage is surface water, provide the base water right number(s)
d. Is the source of the water being discharged groundwater? Y / $N_Y$ If yes, provide the following information:
1. Source aquifer(s) from which water will be pumped: *TBD (Twin Mountains)
2. If the well has not been constructed, provide production information for wells in the same aquifer in the area of the application. See <a href="http://www.twdb.texas.gov/groundwater/data/gwdbrpt.asp">http://www.twdb.texas.gov/groundwater/data/gwdbrpt.asp</a> . Additionally, provide well numbers or identifiers <a href="Provided">Provided</a> .
3. Indicate how the groundwater will be conveyed to the stream or reservoir.
Anticipated to be discharged with an air gap; Additional information will be provided with groundwater permit.
4. A copy of the groundwater well permit if it is located in a Groundwater Conservation District (GCD) or evidence that a groundwater well permit is not required.  Coordination with GCD attached, in process of obtaining permits
di. Is the source of the water being discharged a surface water supply contract? Y / N_N_ If yes, provide the signed contract(s).
dii. Identify any other source of the water N/A

# WORKSHEET 4.1 DISCHARGE POINT INFORMATION

This worksheet is required for **each** discharge point. Submit one Worksheet 4.1 for each discharge point. If there is more than one discharge point, the numbering of the points should be consistent throughout the application and on any supplemental documents (e.g., maps). **Instructions, Page 27.** 

### For water discharged at this location provide:

a.	The amount of water that will be discharged at this point is 160.9 acre-feet per year. The discharged amount should include the amount needed for use and to compensate for any losses.
b.	Water will be discharged at this point at a maximum rate of <u>0.33</u> cfs or <u>150</u> gpm.
c.	Name of Watercourse as shown on Official USGS maps: Unnamed Tributary to Long Branch
	Zip Code
f.	Point is at:
	Latitude <u>33.343188</u> °N, Longitude <u>96.738236</u> °W.
	*Provide Latitude and Longitude coordinates in decimal degrees to at least six decimal places
g.	Indicate the method used to calculate the discharge point location (examples: Handheld GPS Device, GIS, Mapping Program): <u>Autodesk Civil 3D</u>

Map submitted must clearly identify each discharge point. See instructions Page. 15.



### WORKSHEET 4.0 DISCHARGE INFORMATION

Discharge #4

This worksheet required for any requested authorization to discharge water into a State Watercourse for conveyance and later withdrawal or in-place use. Worksheet 4.1 is also required for each Discharge point location requested. **Instructions Page. 26.** *Applicant is responsible for obtaining any separate water quality authorizations which may be required and for insuring compliance with TWC. Chapter 26 or any other applicable law.* 

compliance with 1 wC, Chapter 26 or any other applicable law.
a. The purpose of use for the water being discharged will be Recreation; Irrigation
b. Provide the amount of water that will be lost to transportation, evaporation, seepage, channel or other associated carriage losses 30.6 acre-ft (% or amount) and explain the method of calculation: Calculated using TWBD maximum monthly lake surface evaporation and pan coefficients for Quad 411. See attached calculations.
c. Is the source of the discharged water return flows? Y / N $\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ $
<ol> <li>The TPDES Permit Number(s)(attach a copy of the current TPDES permit(s))</li> </ol>
2. Applicant is the owner/holder of each TPDES permit listed above? Y / N
PLEASE NOTE: If Applicant is not the discharger of the return flows, or the Applicant is not the water right owner of the underlying surface water right, or the Applicant does not have a contract with the discharger, the application should be submitted under Section 1, New or Additional Appropriation of State Water, as a request for a new appropriation of state water. If Applicant is the discharger, the surface water right holder, or the contract holder, then the application should be submitted under Section 3, Bed and Banks.
3. Monthly WWTP discharge data for the past 5 years in electronic format. (Attach and label as "Supplement to Worksheet 4.0").
4. The percentage of return flows from groundwater, surface water?
5. If any percentage is surface water, provide the base water right number(s)
d. Is the source of the water being discharged groundwater? Y / N $_{}$ Y   If yes, provide the following information:
1. Source aquifer(s) from which water will be pumped: *TBD (Twin Mountains)
2. If the well has not been constructed, provide production information for wells in the same aquifer in the area of the application. See <a href="http://www.twdb.texas.gov/groundwater/data/gwdbrpt.asp">http://www.twdb.texas.gov/groundwater/data/gwdbrpt.asp</a> . Additionally, provide well numbers or identifiers <a href="Provided">Provided</a> .
3. Indicate how the groundwater will be conveyed to the stream or reservoir.
Anticipated to be discharged with an air gap; Additional information to be provided with groundwater permit.
4. A copy of the groundwater well permit if it is located in a Groundwater Conservation District (GCD) or evidence that a groundwater well permit is not required.
Coordination with GCD attached, in process of obtaining permits di. Is the source of the water being discharged a surface water supply contract? Y / $N_N$ If yes, provide the signed contract(s).
dii. Identify any other source of the water <u>N/A</u>

#### WORKSHEET 4.1 DISCHARGE POINT INFORMATION

This worksheet is required for **each** discharge point. Submit one Worksheet 4.1 for each discharge point. If there is more than one discharge point, the numbering of the points should be consistent throughout the application and on any supplemental documents (e.g., maps). **Instructions, Page 27.** 

#### For water discharged at this location provide:

a.	The amount of water that will be discharged at this point is 160.9 acre-feet per year. The discharged amount should include the amount needed for use and to compensate for any losses.
b.	Water will be discharged at this point at a maximum rate of 0.33 cfs or 150 gpm.
c.	Name of Watercourse as shown on Official USGS maps: <u>Unnamed Tributary to Long Branch</u>
d.	Zip Code <u>75009</u>
e.	Location of point: In the BENJAMIN HAILE Original Survey No, Abstract No.085397, COLLIN County, Texas.
f.	Point is at:
	Latitude 33.342829 °N, Longitude 96.738137 °W.
	*Provide Latitude and Longitude coordinates in decimal degrees to at least six decimal places
g.	Indicate the method used to calculate the discharge point location (examples: Handheld GPS Device, GIS, Mapping Program): Autodesk Civil 3D
	Map submitted must clearly identify each discharge point. See instructions Page. 15.



## WORKSHEET 5.0 ENVIRONMENTAL INFORMATION

#### 1. Impingement and Entrainment

This section is required for any new diversion point that is not already authorized. Indicate the measures the applicant will take to avoid impingement and entrainment of aquatic organisms (ex. Screens on any new diversion structure that is not already authorized in a water right). Instructions, Page 28.

aquatic organisms (ex. Screens on any new diversion structure that is not already authorized in a water right). <b>Instructions, Page 28.</b>
Screens will be included on any new diversion that is not already authorized.
This section is required for new appropriations of water in the Canadian, Red, Sulphur, and Cypress Creek Basins and in all basins for requests to change a diversion point. <b>Instructions, Page 30.</b>
Description of the Water Body at each Diversion Point or Dam Location. (Provide an Environmental Information Sheet for each location),
a. Identify the appropriate description of the water body. N/A
□ Stream
□ Reservoir
Average depth of the entire water body, in feet:
□ Other, specify:
b. Flow characteristics N/A
If a stream, was checked above, provide the following. For new diversion locations, check one of the following that best characterize the area downstream of the diversion (check one).
☐ Intermittent – dry for at least one week during most years
☐ Intermittent with Perennial Pools – enduring pools
☐ Perennial – normally flowing
Check the method used to characterize the area downstream of the new diversion location.
□ USGS flow records
☐ Historical observation by adjacent landowners  TCEQ-10214C (02/01/2022) Water Rights Permitting Availability Technical Information Sheet  Page 17 of 23

☐ Personal observation
□ Other, specify:
c. Waterbody aesthetics N/A
Check one of the following that best describes the aesthetics of the stream segments affected by the application and the area surrounding those stream segments.  ☐ Wilderness: outstanding natural beauty; usually wooded or unpastured area; water clarity exceptional
☐ Natural Area: trees and/or native vegetation common; some development evident (from fields, pastures, dwellings); water clarity discolored
☐ Common Setting: not offensive; developed but uncluttered; water may be colored or turbid
☐ Offensive: stream does not enhance aesthetics; cluttered; highly developed; dumping areas; water discolored
d. Waterbody Recreational Uses N/A
Are there any known recreational uses of the stream segments affected by the application?
☐ Primary contact recreation (swimming or direct contact with water)
$\square$ Secondary contact recreation (fishing, canoeing, or limited contact with water)
□ Non-contact recreation
e. Submit the following information in a Supplemental Attachment, labeled Addendum to Worksheet 5.0: N/A
<ol> <li>Photographs of the stream at the diversion point or dam location. Photographs should be in color and show the proposed point or reservoir and upstream and downstream views of the stream, including riparian vegetation along the banks. Include a description of each photograph and reference the photograph to the mapsubmitted with the application indicating the location of the photograph and the direction of the shot.</li> </ol>
2. If the application includes a proposed recorrein also include:

- 2. If the application includes a proposed reservoir, also include:
  - i. A brief description of the area that will be inundated by the reservoir.
  - ii. If a United States Army Corps of Engineers (USACE) 404 permit is required, provide the project number and USACE project manager.
  - iii. A description of how any impacts to wetland habitat, if any, will be mitigated if the reservoir is greater than 5,000 acre-feet.

#### 3. Alternate Sources of Water and/or Bed and Banks Applications

This section is required for applications using an alternate source of water and bed and banks applications in any basins. **Instructions, page 31.** 

- a. For all bed and banks applications:
  - Submit an assessment of the adequacy of the quantity and quality of flows remaining after the proposed diversion to meet instream uses and bay and estuary freshwater inflow requirements. The application only requests to discharge and subsequently divert groundwater. The amount of water diverted will not exceed the amount of water discharged, less losses, therefore there should be no changes to downstream instream flows or freshwater
- b. For all alternate source applications:

ii. If groundwater is the alternate source, or groundwater or other surface water will be discharged into a watercourse provide: Reasonably current water chemistry information including but not limited to the following parameters in the table below. Additional parameters may be requested if there is a specific water quality concern associated with the aquifer from which water is withdrawn. If data for onsite wells are unavailable; historical data collected from similar sized wells drawing water from the same aquifer may be provided. However, onsite data may still be required when it becomes available. Provide the well number or well identifier. Complete the information below for each well and provide the Well Number or identifier.

#### Information obtained from nearby well data (TWDB 2024); See attached Water Feasibility Report

Parameter	Average Conc.	Max Conc.	No. of	Sample Type	Sample Date/Time
Culfata ma/I	440.5		Samples	Uistoriaal	2004/2019
Sulfate, mg/L	116.5	144	2	Historical	2004/2019
Chloride, mg/L	17.7	24	2	Historical	2004/2019
Total Dissolved Solids, mg/L	560.35	567.71	2	Historical	2004/2019
pH, standard units	8.42	8.5	2	Historical	2004/2019
Temperature*, degrees Celsius	34	34	2	Historical	2004/2019

<sup>\*</sup> Temperature must be measured onsite at the time the groundwater sample is collected.

iii.	If groundwater will be used, provide the depth of the well	and the name
	of the aguifer from which water is withdrawn	

Depth and Aquifer to be provided with official GCD permit

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## WORKSHEET 6.0 N/A Water Conservation/Drought Contingency Plans

This form is intended to assist applicants in determining whether a Water Conservation Plan and/or Drought Contingency Plans is required and to specify the requirements for plans. **Instructions, Page 31.** 

The TCEQ has developed guidance and model plans to help applicants prepare plans. Applicants may use the model plan with pertinent information filled in. For assistance submitting a plan call the Resource Protection Team (Water Conservation staff) at 512-239-4600, or e-mail wras@tceq.texas.gov. The model plans can also be downloaded from the TCEQ webpage. Please use the most up-to-date plan documents available on the webpage.

#### 1. Water Conservation Plans

- a. The following applications must include a completed Water Conservation Plan (30 TAC § 295.9) for each use specified in 30 TAC, Chapter 288 (municipal, industrial or mining, agriculture including irrigation, wholesale):
  - 1. Request for a new appropriation or use of State Water.
  - 2. Request to amend water right to increase appropriation of State Water.
  - 3. Request to amend water right to extend a term.
  - Request to amend water right to change a place of use.
     \*does not apply to a request to expand irrigation acreage to adjacent tracts.
  - 5. Request to amend water right to change the purpose of use. \*applicant need only address new uses.
  - 6. Request for bed and banks under TWC § 11.042(c), when the source water is State Water.

b. If Applicant is requesting any authorization in section (1)(a) above, indicate each use for

\*including return flows, contract water, or other State Water.

which Applicant is submitting a water Conservation Plan as an attachment.
1Municipal Use. See 30 TAC § 288.2. **
2Industrial or Mining Use. See 30 TAC § 288.3.
3Agricultural Use, including irrigation. See 30 TAC § 288.4.
4Wholesale Water Suppliers. See 30 TAC § 288.5. **
**If Applicant is a water supplier, Applicant must also submit documentation of adoption of the plan. Documentation may include an ordinance, resolution, or tariff, etc. See 30 TAC §§ 288.2(a)(1)(J)(i) and 288.5(1)(H). Applicant has submitted such documentation with each water conservation plan? Y / N

c. Water conservation plans submitted with an application must also include data and information which: supports applicant's proposed use with consideration of the plan's water conservation goals; evaluates conservation as an alternative to the proposed

See 30 TAC § 288.7. Applicant has included this information in each applicable plan? Y / N **Drought Contingency Plans** A drought contingency plan is also required for the following entities if Applicant is requesting any of the authorizations in section (1) (a) above – indicate each that applies: 1. Municipal Uses by public water suppliers. See 30 TAC § 288.20. 2. Irrigation Use/Irrigation water suppliers. See 30 TAC § 288.21. 3. Wholesale Water Suppliers. See 30 TAC § 288.22. b. If Applicant must submit a plan under section 2(a) above, Applicant has also submitted

documentation of adoption of drought contingency plan (ordinance, resolution, or tariff,

etc. See 30 TAC § 288.30) Y / N\_\_\_

appropriation; and evaluates any other feasible alternative to new water development.

2.

\*TO BE PROVIDED\*

#### **WORKSHEET 7.0**

#### ACCOUNTING PLAN INFORMATION WORKSHEET

The following information provides guidance on when an Accounting Plan may be required for certain applications and if so, what information should be provided. An accounting plan can either be very simple such as keeping records of gage flows, discharges, and diversions; or, more complex depending on the requests in the application. Contact the Surface Water Availability Team at 512-239-4600 for information about accounting plan requirements, if any, for your application. **Instructions, Page 34.** 

#### 1. Is Accounting Plan Required

Accounting Plans are generally required:

- For applications that request authorization to divert large amounts of water from a single point where multiple diversion rates, priority dates, and water rights can also divert from that point;
- For applications for new major water supply reservoirs;
- For applications that amend a water right where an accounting plan is already required, if the amendment would require changes to the accounting plan;
- For applications with complex environmental flow requirements;
- For applications with an alternate source of water where the water is conveyed and diverted; and
- For reuse applications.

#### 2. Accounting Plan Requirements

#### a. A **text file** that includes:

- 1. an introduction explaining the water rights and what they authorize;
- 2. an explanation of the fields in the accounting plan spreadsheet including how they are calculated and the source of the data;
- for accounting plans that include multiple priority dates and authorizations, a section that discusses how water is accounted for by priority date and which water is subject to a priority call by whom; and
- 4. Should provide a summary of all sources of water.

#### b. A **spreadsheet** that includes:

- 1. Basic daily data such as diversions, deliveries, compliance with any instream flow requirements, return flows discharged and diverted and reservoir content;
- 2. Method for accounting for inflows if needed;
- 3. Reporting of all water use from all authorizations, both existing and proposed;
- 4. An accounting for all sources of water;
- 5. An accounting of water by priority date;
- 6. For bed and banks applications, the accounting plan must track the discharged water from the point of delivery to the final point of diversion;
- 7. Accounting for conveyance losses;
- 8. Evaporation losses if the water will be stored in or transported through a reservoir. Include changes in evaporation losses and a method for measuring reservoir content resulting from the discharge of additional water into the reservoir;
- 9. An accounting for spills of other water added to the reservoir; and
- 10. Calculation of the amount of drawdown resulting from diversion by junior rights or diversions of other water discharged into and then stored in the reservoir.

## WORKSHEET 8.0 CALCULATION OF FEES

This worksheet is for calculating required application fees. Applications are not Administratively Complete until all required fees are received. **Instructions, Page. 34** 

#### 1. NEW APPROPRIATION

	Description	Amount (\$)
	Circle fee correlating to the total amount of water* requested for any new appropriation and/or impoundment. Amount should match total on Worksheet 1, Section 1. Enter corresponding fee under <b>Amount (\$)</b> .	\$250.00
	<u>In Acre-Feet</u>	
Filing Fee	a. Less than 100 \$100.00	\.
	b. 100 - 5,000 \$250.00	
	c. 5,001 - 10,000 \$500.00	
	d. 10,001 - 250,000 \$1,000.00	
	e. More than 250,000 \$2,000.00	
Recording Fee		\$25.0
Agriculture Use Fee	Only for those with an Irrigation Use.  Multiply 50¢ x 214 Number of acres that will be irrigated with State  Water. **	\$107.00
	Required for all Use Types, excluding Irrigation Use.	\$0.00
Use Fee	Multiply \$1.00 xMaximum annual diversion of State Water in acrefeet. **	
Degraptional Starage	Only for those with Recreational Storage.	\$854.00
Recreational Storage Fee	Multiply \$1.00 x 854_acre-feet of in-place Recreational Use State Water to be stored at normal max operating level.	
	Only for those with Storage, excluding Recreational Storage.	\$0.00
Storage Fee	Multiply $50  \text{c}  \text{x}$ acre-feet of State Water to be stored at normal max operating level.	
Mailed Notice	Cost of mailed notice to all water rights in the basin. Contact Staff to determine the amount (512) 239-4600.	\$459.66
	TOTAL	\$ 1695.66

#### 2. AMENDMENT *OR* SEVER AND COMBINE

	Description	Amount (\$)
T''' T	Amendment: \$100	
Filing Fee	OR Sever and Combine: \$100 xof water rights to combine	
Recording Fee		\$12.50
Mailed Notice	Additional notice fee to be determined once application is submitted.	
	TOTAL INCLUDED	\$ 0.00

#### 3. BED AND BANKS

	Description	Amount (\$)
Filing Fee		\$100.00
Recording Fee		\$12.50
Mailed Notice	Additional notice fee to be determined once application is submitted.	
	TOTAL INCLUDED	\$112.50

## ATTACHMENT A.1

## Written Evidence of Signature Authority

#### WRITTEN CONSENT OF THE SOLE MEMBER OF

#### HW RAMBLE GP, LLC

#### January 1, 2024

The undersigned, being the sole member of HW Ramble GP, LLC, a Texas limited liability company (the "Company"), does hereby consent to, adopt, and approve, in all respects, the following resolutions and each and every action effected thereby.

#### **Annual Election of Officers**

RESOLVED, that the individuals named below are hereby authorized to act, on behalf of the Company, in the capacity set forth opposite their respective names, to serve until he/she resigns, is removed or otherwise disqualified to serve, or until the appointment of a successor:

Name	Title	
Fred J. Balda	President	
Bryan Shahan	Executive Vice President, Chief Financial Officer	
Brian Carlock	Senior Vice President	
Angela Mastrocola	Senior Vice President	
Elaine Ford	Senior Vice President	
Timothy E. Kinnear	Senior Vice President, Tax	
Danny Ellis	Senior Vice President	RECEIVED
Molly McLendon	Vice President, Treasurer	MOCIVED
Michele M. Ringnald	Secretary	MAR 13 2025
Stephen D. Parker	Assistant Secretary	Water Availability Division

RESOLVED, that the officers of the Company, except those elected in a limited capacity, are hereby authorized and directed, in the name and on behalf of the Company, to do and perform such acts and deeds and to execute and deliver such instruments and documents as may be necessary or desirable to carry out and comply with the terms and provisions of these resolutions, and that all past and present actions and deeds of any such officer that are consistent with the purposes of the Company be, and the same hereby are, in all respects, ratified, approved and adopted as the acts of the Company.

RESOLVED, that the Secretary and/or Assistant Secretary of the Company is directed to place this Written Consent of the Sole Member of HW Ramble GP, LLC, in the Company's corporate records.

This written consent of the sole member of HW Ramble GP, LLC is executed to be effective as of the date first above written.

MANAGING MEMBER:

HW RAMBLE, LLC,

a Texas limited liability company

--- DocuSigned by:

Steve Parker

26549F1EF19F44E

Stephen D. Parker, Assistant Secretary



## WRITTEN CONSENT OF THE SOLE MEMBER OF THE ENTITIES LISTED ON EXHIBIT A

#### September 1, 2024

The undersigned, in its capacity as the sole member (the "Sole Member") of each of the entities listed on Exhibit A attached hereto and incorporated herein (each, a "Company"), does hereby consent to, adopt, and approve in all respects the following resolutions and each and every action effected thereby.

#### Removal of Angela Mastrocola

RESOLVED, that the Sole Member hereby removes Angela Mastrocola as Senior Vice President of each Company.

RESOLVED, that the Secretary and/or Assistant Secretary of each Company is directed to place this Written Consent of the Sole Member of each of the entities listed on <u>Exhibit A</u> in each Company's corporate records.

Executed to be effective as of the date first shown above.

#### **SOLE MEMBER:**

**HW RAMBLE, LLC** a Texas limited liability company

By: Stee Parker

Stephen D. Parker,

Assistant Secretary

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## **ATTACHMENT B.3**

Original Photographs



#### **Site Photographs Appendix**

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1: View of the Site from the north.



2: View of the Site from the east.





3: View of the Site from the south.



4: View of the Site from the west.

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ALPHA Report No. E231972



5: View of an outbuilding located on the central portion of the Site.



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6: View of a pool located on the central portion of the Site.



7: Representative view of ponds located throughout the Site.





8: View of a storm shelter located on the northeastern portion of the Site.



9: View of an outbuilding located on the northeastern portion of the Site.





10: View of a silo located on the northeastern portion of the Site.



11: Representative view of pole-mounted transformers located throughout the Site.



12: Representative view of metal debris located on the central portion of the Site.



13: View of the north adjoining property.



14: View of a pipeline marker located on the north adjoining property.

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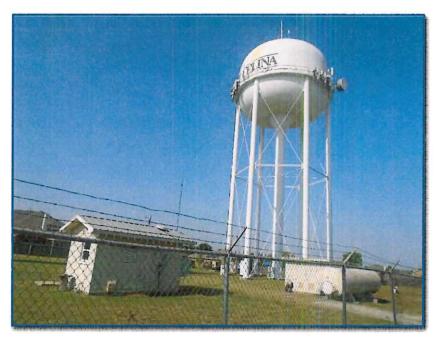


15: View of the east adjoining property.



16: View of the south adjoining property.

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17: View of a water tower located on the south adjoining property.



18: View of the southwest adjoining property.

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19: View of the west adjoining property.

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# ATTACHMENT B.4 Water Availability Report



March 6, 2025

Mr. Patrick Cowden
Director of Development
Hillwood Enterprises, L.P.
3000 Turtle Creek Boulevard
Dallas, TX 75219

RE: Ramble – Groundwater Availability and Quality Evaluation KHA No. 063258426

Dear Mr. Cowden:

Kimley-Horn and Associates, Inc. (KHA) was hired by Hillwood Enterprises to perform a groundwater availability analysis for supplementing water on-site using the existing ponds on the development site. This letter will review the preliminary findings of the analysis and final recommendations.

#### **EVALUATION PROCESS**

Data Collection

Kimley-Horn performed a groundwater availability analysis utilizing the following steps and the corresponding collected information,

- 1. Determination of water quantity required based on the proposed losses due to evaporation.
- Review of existing surrounding groundwater wells and their raw water quality and availability quantity.
- 3. Review of the nearby existing stream water quality of Little Elm Creek and of Lewisville Lake.
- 4. Review of the nearby existing stream water quality of Long Branch and of Lavon Lake.
- 5. Review of historical data regarding the Twin Mountains aquifer.

The project site is shown in Figure A.

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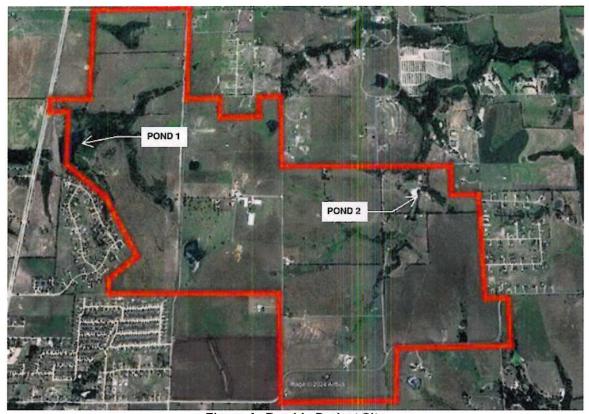


Figure A: Ramble Project Site

Calculations for the estimated water quantity required from the groundwater wells for two existing ponds onsite, based on the proposed losses due to evaporation and irrigation demand, as shown in **Table A** and **Table B**, respectively. Pond 1 is located on the west side of the project site, and Pond 2 is located on the east side of the project site per **Figure A**. The maximum groundwater quantity was determined using the worst-case scenarios for no precipitation and high evaporation rates from the Texas Water Development Board (TWDB) for both ponds onsite. The summary of the values utilized, and the maximum rate determined are provided in **Table C**. Irrigation demands for the landscape area of the project site, a total of approximately 214-acres of land, were also considered and are provided with the final calculations in **Appendix A**.

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Table A: Evaporation Volume Summary and Maximum Rate Required

		Pond 1- West	Pond 2- East	
Month	TWDB Evaporation - Max	Surface Area (ac.)		Total
Month	(in.)	13.0	9.0	(ac-ft)
		Evaporation Volume (ac-ft)		
January	4.30	4.66	3.23	7.88
February	5.29	5.73	3.97	9.70
March	5.65	6.12	4.24	10.36
April	6.32	6.85	4.74	11.59
May	6.59	7.14	4.94	12.08
June	8.95	9.70	6.71	16.41
July	10.47	11.34	7.85	19.20
August	11.14	12.07	8.36	20.42
September	8.82	9.56	6.62	16.17
October	6.00	6.50	4.50	11.00
November	4.32	4.68	3.24	7.92
December	3.75	4.06	2.81	6.88
Annual	81.60	88.40	61.20	149.60
Maximum Annual Evaporation (ac-ft)			149.60	
Maximum	Annual Evaporation (gallons)	48,747,301		
Maximu	m Daily Evaporation (gallons)		133,554	

**Table B: Irrigation Demand Summary** 

Development Section	Annual Associated Irrigation Demand (gallons)
Tract A/B	109,632,317
Tract B/C	84,909,866
Total	194,542,183

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**Table C: Water Demand Totals** 

Associated Pond	Annual Demand (gallons)	Daily Demand (gallons/hr)	Daily Demand (gpm)
Pond 1 - West	138,437,545.40	11,852.50	197.50
Pond 2 - East	104,851,947.20	8,977.10	150.00
Both Pond 1 and Pond 2	233,782,345.60	20,015.61	347.50

Currently there are no existing groundwater wells on the project site, but it is proposed that water in both Pond 1 and Pond 2 be supplemented by groundwater. It is recommended that a well be drilled onsite to determine the production capacity at the project site and the potential water quality.



Preliminary Chapter 307 screening and water quality impact calculations included in the report were performed using existing groundwater data for a total of four (4) groundwater wells adjacent to the site. These wells are shown in **Figure B**.

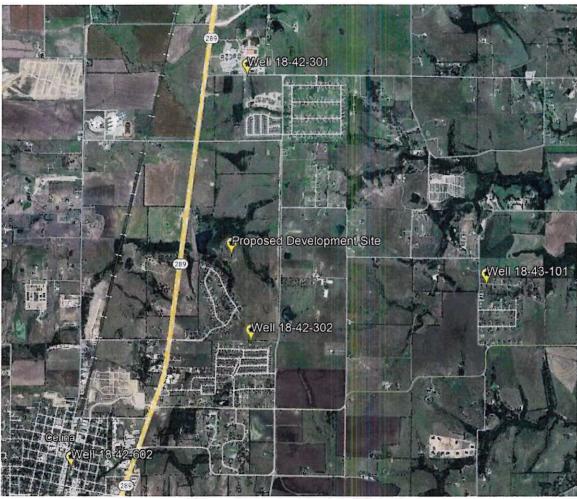


Figure B: Nearby Well Locations

The preliminary well data utilized from the adjacent wells is based on both the Paluxy and Twin Mountain aquifer formations. A summary of the groundwater quality evaluated is provided in **Table D**. Detailed documentation regarding the well data collected is provided in **Appendix B**.

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Table D: Existing Groundwater Well Water Quality Summary

Parameter	Well 1842301	Well 1843101	Well 1842302	Well 1842602
Aquifer	Paluxy	Twin Mountains	Twin Mountains	Paluxy/Antlers
Silica		_	13.1	13.9
Calcium	3	1.67	4.6	0.31
Magnesium	1	<1	1.48	<0.2
Sodium	288	217	191	148
Potassium	-	-	1.92	0.67
Total Iron	400 ug/L	17 ug/L	65.9 ug/L	<51 ug/L
Phosphorus (as Phosphate)	-	-	-	e_
Phosphorus	-	-7	<0.02	-
Carbonate	40.8	20	7.296	13.8
Bicarbonate	557.7	403	390.315	311.19
Sulfate	79	89	144	52.7
Chloride	23	24	11.4	10.6
Ammonia	-	-	( <del>-</del>	-
Ammonia Nitrogen	-	-	-	-
Nitrate-Nitrogen	0.5	<0.01	<0.02	<0.09
pН	8.5 SU	8.5 SU	8.38 SU	8.72 SU
TDS	712	553	567.706	394
Total Alkalinity as CaCO3	525	364	332	278
Total Hardness as CaCO3	11	4.17	17.778	1
Temperature (°C)		-	34	26.8

The water quality data reviewed from the existing wells evaluated indicates that the groundwater produced from the Twin Mountains formation is the most desirable and is therefore recommended as the aquifer to utilize groundwater from for pond supplementing. Water quality from the Twin Mountains formation does not exceed the Texas Commission on Environmental Quality (TCEQ) primary standards, indicating the groundwater produced would not have adverse health and environmental impacts. The well data also indicates that the groundwater produced is not brackish, as the average total dissolved solids (TDS) for the wells is below 1,000 mg/L.

Any runoff from the project site will flow into two separate tributaries that will flow into two separate large bodies of water. Water leaving the site on the west side of the property will flow into an unnamed tributary before continuing to Little Elm Creek (Segment 0823A) and then discharging into Lewisville Lake (Segment 0823) of the Trinity River Basin. Water leaving the site on the east side of the property will flow into Long Branch Creek (Segment 0821D) until it reaches Lake Lavon (Segment 0821) of the Trinity River Basin. Since the tributaries before Little Elm Creek and Long Branch Creek are unclassified, they do not have an assigned recreational use nor associated numerical criteria. To determine the impact of runoff from the site on the abovementioned bodies of water, KH, following



TCEQ 30 TAC Rule §307.4(j)(3) for assigning presumed recreational uses to an unclassified water body, determined preliminary associated numerical criteria for each unclassified water body.

The criteria utilized was based on assigning a presumed recreational use for each water body. The recreational uses of Secondary Contact Recreation 1 and General Use were selected for the unnamed tributaries to Little Elm Creek and Long Branch Creek, because of the average depth of the tributaries and the location of the water bodies regarding public access points. Per TCEQ 30 TAC §307.4(2)(D), Secondary Contact Recreation 1 applies to water bodies where water recreation can occur, but the nature of the recreation does not involve a significant risk of ingestion and applies to intermittent and perennial freshwaters where site-specific information demonstrates that Primary Contact Recreation 1 or 2 have little to no likelihood of occurring. To presume a Secondary Contact Recreation 1 use, the following characteristics must be demonstrated:

- During dry weather flows, the average depth at the mid-channel is less than 0.5 meters and there are no substantial pools with a depth of 1 meter or greater; and
- There are no existing recreational activities that create a significant risk of ingestion or uses for Primary Contact Recreation 1 or 2.

Based on data from the *Hydrologic Data for Litte Elm Creek, Trinity River Basin, Texas, 1976*, the equivalent depth measured was approximately 4-inches. Based on data for Long Branch Creek from the *East Fork Trinity River – Lavon Lake Watershed Data Report, September 2022*, the approximate average depth was less than 3-feet. The data referenced is provided in **Appendix C**.

The recreational uses of Primary Contact Recreation 1 and General Use were selected for Little Elm Creek and Long Branch Creek because they directly contributes to Lewisville Lake (Segment 0823) and Lavon Lake (Segment 0821), respectively, both of which have presumed uses of Aquatic Life Use, Primary Contact Recreation 1 Use, General Use, Fish Consumption Use, and Public Water Supply Use as per the 2002 Texas Water Quality Inventories for both Lake Lavon and Lewisville Lake, provided in **Appendix C**. Primary Contact Recreation 1 use includes wading by children, swimming, water sports, and fishing.

Following the guidance from TCEQ 30 TAC Rule §307.4(j)(3), numerical criteria were selected for each water body based on the presumed recreational uses determined. The selected criteria are equally stringent to the Primary Contact Recreation 1 standards as noted in both the EPA's Water Quality Standards and TCEQ's Surface Water Quality Standards. Constituent parameters for Long Branch Creek, such as total dissolved solids (TDS), chloride, and sulfate were evaluated for screening criteria for the governed water bodies, based on the existing numerical criteria for Lavon Lake (Segment 0821). The same constituent parameters were considered for Little Elm Creek based on the existing numerical data for Lewisville Lake (Segment 0823). Table E summarizes the assigned presumed uses and the corresponding presumed numerical criteria, as determined using the referenced TCEQ guidance and the historical data compiled in Appendix C.



Table E: Preliminary Assigned Uses and Numerical Criteria

Water Body	Presumed Uses	Preliminary DO Min. Limit (mg/L)	Preliminary TDS Max. Limit (mg/L)	Preliminary Chloride Max Limit (mg/L)	Preliminary Sulfate Max Limit (mg/L)	Preliminary pH Range	Temp. (°C)
Little Elm Creek (Unclassified)	Primary Contact Recreation 1; General Use	5.0	500	80	60	6.5-9	32.2
Lewisville Lake (Classified)	Aquatic Life Use, Contact Recreation Use, General Use, Fish Consumption Use, Public Water Supply Use	5.0	500	80	60	6.5-9	32.2
Long Branch (Unclassified)	Primary Contact Recreation 1; General Use	5.0	500	100	100	6.5-9	32.2
Lavon Lake (Classified)	Aquatic Life Use, Contact Recreation Use, General Use, Fish Consumption Use, Public Water Supply Use	5.0	500	100	REC	6.5-9 CEIVE AR 13 2025	32.2

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Additionally, the groundwater quality of the adjacent Twin Mountains wells was compared to the ambient concentrations noted in the Little Elm Creek and Long Branch Creek systems as well as the nearby Aubrey Branch system, as shown in **Table F** and **Table G**.

Table F: Comparison of Groundwater Quality to Adjacent Stream Quality

Parameter	Presumed Ambient Concentration for Little Elm Creek (mg/L)	Presumed Ambient Concentration for Aubrey Branch (mg/L)	Existing Groundwater Well Concentrations (Twin Mountains Aquifer - mg/L)
Sulfate (Sulphate)	29	30	114
Chloride	17	19	24
TDS	239	208	568



Table G: Comparison of Groundwater Quality to Adjacent Stream Quality

Parameter	Presumed Ambient Concentration for Long Branch Creek (mg/L)	Presumed Ambient Concentration for Aubrey Branch (mg/L)	Existing Groundwater Well Concentrations (Twin Mountains Aquifer - mg/L)
Sulfate (Sulphate)	23	23	114
Chloride	8	8	24
TDS	203	216	568

Texas Water Quality Standards Compliance

As required by the TCEQ, under the Texas Administrative Code (TAC) Title 30, Part 1, Chapter 307, calculations were performed to ensure that supplementing the pond with the proposed groundwater well will maintain a quality of water, consistent with the State's standards for public health and enjoyment, propagation, and protection of terrestrial and aquatic life.

The initial calculations were developed to determine the impact of any runoff from the proposed groundwater supplement to the development site ponds. Based on the water quality and characteristics of the adjacent existing Twin Mountains groundwater wells, Little Elm Creek, and Long Branch Creek calculations were performed for sulfate, chloride, and TDS screenings. The results of these calculations are provided in **Table H** for Little Elm Creek, impacted by Pond 1 and **Table I** for Long Branch Creek, impacted by Pond 2. Detailed calculations are provided in **Appendix D**.

Table H: Chapter 307 Screening Calculations Summary - Pond 1

Parameter	Presumed Ambient Concentration for Little Elm Creek - Appendix E (mg/L)	Existing Groundwater Well Concentrations (Twin Mountains Aquifer - mg/L)	Estimated Screening Value (mg/L)
Sulfate (Sulphate)	29	114	300
Chloride	17	24	400
TDS	239	568	12500 EVE

Table I: Chapter 307 Screening Calculations Summary - Pond 2

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Parameter	Presumed Ambient Concentration for Long Branch Creek - Appendix E (mg/L)	Existing Groundwater Well Concentrations (Twin Mountains Aquifer - mg/L)	Water Availabilit Estimated Screening Value (mg/L)	y Divisio
Sulfate (Sulphate)	23	114	500	
Chloride	8	24	500	
TDS	203	568	2500	

From the Chapter 307 calculations, it was determined no estimated raw groundwater concentrations exceed the estimated screening values. Additionally, water quality impact concentrations were performed, as impacted by Pond 1 and Pond 2, respectively, and are summarized in **Table J** and detailed in **Appendix D**.



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#### Table J: Water Quality Impact Calculations Summary

#### #1 - UNNAMED TO LITTLE ELM CREEK TO LAKE LEWISVILLE (WEST OF PROPERTY) -- POND 1

#### Impact on Little Elm Creek

Water Quality Measure	Twin Mountains / Lower Trinity (mg/L)	Secondary Concentration Standard (mg/L)	Proposed Increase (%)	Resultant Concentration (mg/L)
Sulfate	114	300	0.00010%	300
Chloride	24	300	0.00002%	300
TDS	568	1000	0.0002%	1000

#### Impact on Lake Lewisville

Water Quality Measure	Twin Mountains / Lower Trinity (mg/L)	Secondary Concentration Standard (mg/L)	Proposed Increase (%)	Resultant Concentration (mg/L)
Sulfate	114	300	0.000005%	300
Chloride	24	300	0.0000010%	300
TDS	568	1000	0.000007%	1000

#### #1 - UNNAMED TO LONG BRANCH CREEK TO LAVON LAKE (SOUTHEAST OF PROPERTY) - POND 2

#### Impact on Long Branch Creek

		Toug Di Citett di Catt		
Water Quality Measure	Twin Mountains / Lower Trinity  (mg/L)	Secondary Concentration Standard (mg/L)	Proposed Increase (%)	Resultant Concentration (mg/L)
Sulfate	114	300	0.00008%	300
Chloride	24	300	0.00002%	300
TDS	568	1000	0.00011%	1000

#### Impact on Lake Lavon

Water Quality Measure	Twin Mountains / Lower Trinity  (mg/L)	Secondary Concentration Standard (mg/L)	Proposed Increase (%)	Resultant Concentration (mg/L)
Sulfate	114	300	0.00003%	300
Chloride	24	300	0.00001%	300
TDS	568	1000	0.00005%	1000



#### RECOMMENDATIONS

While the groundwater well data of the four (4) nearby existing wells meets the recommended standards for drinking water quality, it is recommended that four (4) wells be drilled onsite to confirm the assumptions from the adjacent wells and for final approved supplementing uses. With the new wells, site-specific subsurface qualities can be analyzed and confirmed for the most accurate information. The proposed four (4) wells should be drilled onsite to meet the estimated maximum daily demand requirements of approximate 347.50 gallons per minute (gpm), for supplementing the existing ponds for irrigation and loss due to evaporation. Each pond will be supplemented by two (2) wells. See **Appendix D** for detailed calculations.

Any groundwater wells on the project site must conform to the *North Texas Groundwater Conservation District (NTGCD) Rules for Water Wells in Collin, Cooke, and Denton Counties, Texas.* The well or well(s) must be approved and registered by the NTGCD before construction begins and must meet the minimum spacing requirements outlined for the maximum capacity of the well. Since the proposed well(s) will be producing more than 17.36 gpm, they will be classified as non-exempt wells, which will require the submission of a Production Permit Application to the NTGCD, and the wells being registered with NTGCD upon construction completion.

#### SUMMARY

The groundwater quality data from the existing groundwater wells adjacent to the project site, were thoroughly evaluated in accordance with an adapted TCEQ screening protocol for an unclassified intermittent stream upstream of a classified lake. The preliminary screening calculations, which adhered to the guidance outlined in the 30 TAC, Chapter 307 for implementing Texas surface water quality standards, showed no concern regarding TDS, chloride or sulfate concentrations. These parameters were determined to be within acceptable limits, indicating the groundwater quality is consistent with the State required standards.

Furthermore, the groundwater quality data from the Twins Mountains formation was compared with the water quality of adjacent streams, such as Little Elm Creek and Long Branch Creek, revealing that the TDS concentration in the groundwater well aligns with the concentration ranges typically found in both the Lavon Lake and Lewisville Lake watersheds. This comparison further supports that the proposed groundwater source, the Twin Mountains aquifer, is consistent with regional water quality trends and poses no risk to the surrounding aquatic ecosystems.

Based on this preliminary report, it is recommended to construct a groundwater well onsite to confirm the above statements and finalize the State Water Rights Permit application for the site.

We appreciate the opportunity to be of service to you on this project. Please do not hesitate to contact us if you have any questions.

Respectfully,

KIMLEY-HORN AND ASSOCIATES, INC. Texas Firm Registration Number: F-928

Appendix A – Evaporation and Irrigation Rate Calculations
Appendix B – Existing Adjacent Groundwater Well Data





Appendix C - Additional Reference Resources

2002 Water Quality Inventory Segment ID: 0823

2002 Water Quality Inventory Segment ID: 0821

Texas Water Development Board Updated Evaluation of Water Resources in Part of North-

Central Texas, September 1999

USGS Nutrient Loading to Lewisville Lake, North-Central Texas, 1984-87

East Fork Trinity River - Lavon Lake Watershed Data Report, September 2022

Hydrologic Data for Little Elm Creek, Trinity River Basin Texas, 1976

Appendix D - Chapter 307 Analysis Calculations and Water Impact Calculations

Ramble 307 Analysis Calculations

Ramble Water Quality Impact Calculations

## **APPENDIX A**

# EVAPOATION AND IRRIGATION RATE CALCULATIONS

#### Monthly Evaporation Summary

		Pond 1- West	Pond 2- East	
Month	TWDB Evaporation - Max	Surface	Area (ac.)	Total
Month	(in.)	13.0	9.0	(ac-ft)
		Evaporation	Volume (ac-ft)	
January	4.30	4.66	3.23	7.88
February	5.29	5.73	3.97	9.70
March	5.65	6.12	4.24	10.36
April	6.32	6.85	4.74	11.59
May	6.59	7.14	4.94	12.08
June	8.95	9.70	6.71	16.41
July	10.47	11.34	7.85	19.20
August	11.14	12.07	8.36	20.42
September	8.82	9.56	6.62	16.17
October	6.00	6.50	4.50	11.00
November	4.32	4.68	3.24	7.92
December	3.75	4.06	2.81	6.88
Annual	81.60	88.40	61.20	149.60
Maximu	ım Annual Evaporation (ac-ft)		149.60	
Maximur	n Annual Evaporation (gallons)		48,747,310	
Maximu	m Daily Evaporation (gallons)		133,554	



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TWDB Link

75th Percentile:

Max

2.32

4.30

2.80

5.29

4.23

5.65

5.10

6.32

5.14

6.59

6.81

8.95

8.14

10.47

7.55

11.14

4.74

5.97

3.40

4.32

2.72

http://midgewater.twdb.texas.gov/evaporation/quadrangle/411/evaporation-tabular.txt

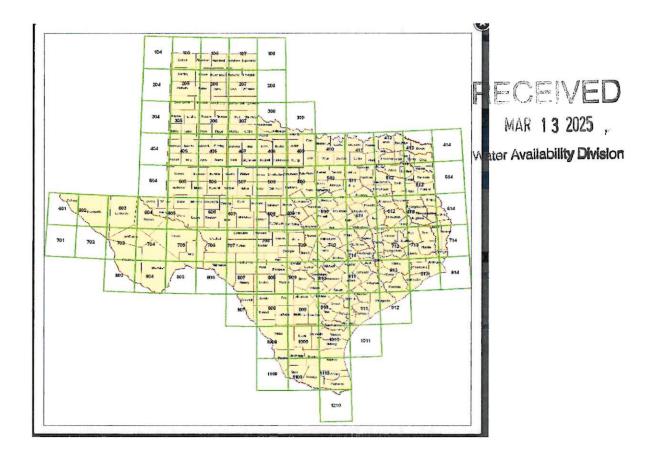
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#### Texas Water Development Board

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#QUAD	YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	ОСТ	NOV	DEC
411	1954	1.23	4.22	4.94	5.55	4.06	6.96	9.25	10.61	7.37	4.25	2.99	2.44
411	1955	1.74	1.84	4.02	4.47	5.18	6.97	8.09	7.28	6.47	6.00	4.32	2.42
411	1956	2.08	2.20	4.85	5.78	6.13	8.44	9.43	11.14	8.82	5.43	3.36	2.63
411	1957	1.85	1.79	2.73	2.78	3.20	6.03	8.17	7.21	5.42	3.63	1.76	2.31
411	1958	1.40	1.56	2.37	3.49	4.18	6.56	8.50	6.81	4.54	3.57	3.17	1.69
411	1959	1.31	2.06	4.78	4.66	4.97	5.64	5.84	6.56	5.63	4.25	2.14	2.02
411	1960	1.42	1.93	2.86	4.33	5.13	6.79	6.50	6.26	5.10	3.48	2.60	1.32
411	1961	1.34	1.79	3.92	4.92	4.72	6.09	6.27	6.50	5.57	3.96	2.47	1.56
411	1962	1.61	2.61	3.72	4.00	6.09	5.03	6.30	6.91	4.67	4.17	2.31	1.47
411	1963	1.62	2.02	5.03	4.84	4.82	6.69	6.69	7.69	5.39	5.99	3.47	1.70
411	1964	1.91	2.14	3.92	4.61	4.75	6,81	9,36	7.83	4.17	4.45	2.55	2.25
411	1965	2.14	1.74	2.96	5.38	4.20	5.58	8.18	7.89	6.87	4.14	2.46	2.00
411	1966	1.48	1.48	4.70	4.47	4.32	5.81	7.55	5.78	4.18	4.55	3.55	1.77
411	1967	2.78	3.03	5.65	3.87	4.80	6.46	6.51	7.74	3.72	5.25	2.54	1.81
411	1968	1.11	1.80	3.45	4.12	4.10	5.70	6.21	7.16	4.98	4.36	3.08	2.43
411	1969	2.02	2.18	3.18	4.28	3.92	7.22	8.16	6.48	5.17	4.26	2.99	2.01
411	1970	0.92	2.64	2.76	3.90	4.95	5.46	7.50	7.31	4.92	3.49	3.41	2.74
411	1971	2.23	2.67	5.16	5.79	5.15	7.55	8.15	5.19	5.40	3.71	3.24	1.57
411	1972	1.72	2.80	4.35	5.48	5.19	7.13	8.45	5.80	5.53	4.60	2.36	1.63
411	1973	1.25	1.90	4.23	3.48	5.14	5.23	6.49	7.02	4.41	3.49	3.01	2.70
411	1974	1.53	3.65	4.56	5.84	5.61	6.73	8.17	6.19	3.22	3.89	2.75	1.41
411	1975	2.23	2.03	3.16	4.54	3.72	6.12	6.53	6,58	5.00	5.08	3.96	2.20
411	1976	3.17	3.83	3.68	4.15	3.98	5.68	6.12	6.73	5.39	3.75	2.40	2.74
411	1977	1.43	2.80	4.67	4.98	5.15	7.09	8.58	6.42	6.03	4.74	3.27	3.74
411	1978	1.40	1.42	3.35	5.30	5.02	7.05	9.60	7.83	5.52	4.71	2.54	2.52
411	1979	2.29	1.43	3.69	4.01	4.98	6.80	6.83	6.52	5.43	5.83	3.18	2.17
411	1980	2.16	2.77	4.05	5.10	4.74	8.25	10.47	9.92	7.43	5.21	2.82	2.12
411	1981	2.06	2.00	3.97	4.83	4.37	6.17	7.77	7.08	5.54	3.97	3.12	2.72
411	1982	2.40	1.92	3.44	3.99	3.97	5.23	6.79	7.35	5.81	4.27	2.81	1.67
411	1983	1.95	1.71	3.46	4.13	4.33	5.27	7.10	6.69	6.29	4.42	3.35	1.76
411	1984	1.59	3.02	3.51	4.90	5.36	6.62	7.57	7.55	6.85	3.71	3.33	1.56
411	1985	1.50	1.25	3.62	4.67	4.86	6.82	7.32	8.48	6.72	3.82	2.75	1.61
411	1986	2.81	2.45	4.81	4.02	3.94	5.76	8.92	7.53	5.11	3.09	1.87	1.37
411	1987	2.35	2.25	2.94	5.37	4.19	5.86	6.83	7.98	4.95	4.64	3.03	1.40
411	1988	2.14	2.32	3.50	5.10	5.79	7.42	7.19	7.77	5.05	4.41	3.60	2.09
411	1989	2.24	2.36	3.82	5.23	5.07	5.13	5.66	6.20	5.12	5,60	3.62	3.25
411	1990	2.95	2.46	2.97	3.61	4.36	7.06	7.67	6.67	5.23	4.21	3.27	1.65
411	1991	1.94	2.34	4.36	3.88	4.59	6.36	8.08	6.55	4.82	5.43	3.17	3.60
411	1992	2.37	2.26	4.06	4.15	3.90	5.24	6.99	5.62	4.72	4.89	2.80	1.93
411	1993	1.68	1.89	3.23	4.33	4.45	5.76	10.39	8.91	6.62	4.80	2.76	2.33
411	1994	2.25	1.72	3.66	4.37	3.99	6.44	7.57	7.33	5.51	4.48	2.92	1.57
411	1995	1.94	2.45	2.50	4.07	3.91	5.62	6.57	6.92	4.72	5.52	3.60	1.86
411	1996	2.77	5.29	4.06	5.42	5.94	6.34	7.11	4.81	3.89	5.27		3.13
411	1997	2.44	2.11	3.70	4.33	4.63	5.62	6.76	6.51	6.00	4.13	3.62 2.55	2.84
411	1998	1.40	1.79	3.00	5.26	5.26	7.94	8.54	7.40	5.78			
411	1999	1.91	2.31	3.81	4.57	4.69	6.37	7.62			4.01	2.16	1.37
411	2000	4.08	4.70	4.43	5.62	6.59	5.39	7.62	7.17	5.45 7.78	4.46 4.42	2.96 3.28	2.11
411	2000	2.14	1.92	2.76	3.75	4.40	5.89	7.74	6.70		4.42		
411	2001	2.14	2.92	3.20	3.75	4.40	5.89	5.56	6.33	3.85 5.11	3.16	2.85	2.13
411	2002	2.10	2.14	3.41	5.08	4.30	5.83	7.06	6.43	4.23	3.16	2.48 3.63	2.53
411	2003	2.10	2.14	4.00	4.00	4.57	4.50	6.06	5.87		3.95	2.24	2.70
411	2004	2.10	2.14	3.90	4.00	4.57	6.42	5.88	5.87	5.22 6.31		4.06	3.15
144											4.58		
411	2006	4.30	2.98	3.03	4.89	5.45	6.64	8.49	8.34	5.58	4.71	3.17	2.79
411	2007	2.78	2.69	3.93	3.69	3.83	5.05	4.74	5.99	4.42	4.06	3.96	2.26
411	2008	2.47	3.03	4.01	4.66	4.77	6.76	7.85	5.84	4.49	4.28	3.86	2.81
411	2009	2.31	3.34	4.40	4.72	3.62	6.18	6.75	6.55	4.19	3.57	3.07	1.83
411	2010	2.32	2.88	3.88	4.64	4.98	6.38	6.45	7.48	4.94	3.62	2.93	3.30
411	2011	1.84	2.41	4.23	6.12	5.09	7.10	7.86	8.71	6.70	4.73	4.08	3.75
411	2012	1.99	2.20	3.07	3.81	5.30	6.19	6.22	7.19	6.11	4.13	3.86	2.53
411	2013	2.51	2.95	4.34	4.61	4.67	7.25	6.53	7.08	. 6.30	2.70	2.85	2.15
		1.84	2.43	2.07	5.33	5.84	6	6.54	7.23	5.89	4.84	3.51	1.97
411	2014				6.32	5.58	8.95	7.57	8.24	6.41	5.4	3.48	3.66
411 411	2014 2015	1.64	2.82	2.92		700000							
411 411 411	2014 2015 2016	1.64 2.12	3.32	4.03	4.55	4.67	6.72	8.5	4.63	4	4.77	3.47	1.93
411 411 411 411	2014 2015 2016 2017	1.64 2.12 2.75	3.32 3.75	4.03 4.32	4.55 4.55	4.76	5.39	7.19	5.24	5.34	4.27	2.88	2.79
411 411 411 411 411	2014 2015 2016 2017 2018	1,64 2.12 2.75 2.39	3.32 3.75 1.82	4.03 4.32 3.9	4.55 4.55 3.98	4.76 5.6	5.39 7.17	7.19 7.92	5.24 6.6	5.34 3.33	4.27 2.88	2.88 3.33	2.79 2.56
411 411 411 411 411 411	2014 2015 2016 2017 2018 2019	1.64 2.12 2.75 2.39 2.12	3.32 3.75 1.82 2.05	4.03 4.32 3.9 3.32	4.55 4.55 3.98 4.64	4.76 5.6 4.43	5.39 7.17 5.52	7.19 7.92 7.09	5.24 6.6 6.97	5.34 3.33 6.21	4.27 2.88 4.23	2.88 3.33 2.15	2.79 2.56 1.97
411 411 411 411 411 411 411	2014 2015 2016 2017 2018 2019 2020	1.64 2.12 2.75 2.39 2.12 1.71	3.32 3.75 1.82 2.05 2.53	4.03 4.32 3.9 3.32 3	4.55 4.55 3.98 4.64 3.92	4.76 5.6 4.43 4.31	5.39 7.17 5.52 6.39	7.19 7.92 7.09 6.35	5.24 6.6 6.97 7.16	5.34 3.33 6.21 3.55	4.27 2.88 4.23 3.53	2.88 3.33 2.15 2.78	2.79 2.56 1.97 2.8
411 411 411 411 411 411 411 411	2014 2015 2016 2017 2018 2019 2020 2021	1,64 2.12 2.75 2.39 2.12 1.71 2.26	3.32 3.75 1.82 2.05 2.53 1.64	4.03 4.32 3.9 3.32 3 3.99	4.55 4.55 3.98 4.64 3.92 4.2	4.76 5.6 4.43 4.31 3.75	5.39 7.17 5.52 6.39 4.56	7.19 7.92 7.09 6.35 4.99	5.24 6.6 6.97 7.16 4.98	5.34 3.33 6.21 3.55 4.68	4.27 2.88 4.23 3.53 4.56	2.88 3.33 2.15 2.78 3.32	2.79 2.56 1.97 2.8 3.12
411 411 411 411 411 411 411	2014 2015 2016 2017 2018 2019 2020	1.64 2.12 2.75 2.39 2.12 1.71	3.32 3.75 1.82 2.05 2.53	4.03 4.32 3.9 3.32 3	4.55 4.55 3.98 4.64 3.92	4.76 5.6 4.43 4.31	5.39 7.17 5.52 6.39	7.19 7.92 7.09 6.35	5.24 6.6 6.97 7.16	5.34 3.33 6.21 3.55	4.27 2.88 4.23 3.53	2.88 3.33 2.15 2.78	2.79 2.56 1.97 2.8

ANNUAL 63.87 58.80 70.29 46.88 47.84 49.86 47.72 49.11 48.89 55.95 54.75 53.54 49.64 54.16 48.50 51.87 50.00 55.81 55.04 48.35 53.55 51.15 51.62 58.90 56.26 53.16 65.04 53.60 49.65 50.46 55.57 53.42 51.68 51.79 56.38 53.30 52.11 55.12 48.93 57.15 51.81 49.68 57.65 51.62 53.91 53.43 64.74 48.14 47.27 50.43 53.94 61.81 47.40 54.83 50.53 53.80 62.62 52.60 53.94 53.49 62.99 52.71 53.23 51.48 50.7 48.03 46.05 54.03 47.96



54.99 70.29

#### **Groundwater and Irrigation Calculation Summary**

Gr	oundwater Well Sizing	
	Tract A/B	
Tract A Phase 1	42896185	gal/yr
Tract A Phase 2	25504421	gal/yr
Tract B Phase 2	10563496	gal/yr
Tract B Phase 3	30668215	gal/yr
Evaportation	28805228.4	gal/yr
Total Water Demand:	138437545.4	gal/yr
Water Demand per Well:	69218772.7	gal/yr
Water Demand per Well:	212.4	ac-ft
Demand per Day	189640.5	gal/well/day
Pump Run Time	16	hrs
Pump Capcity	11852.5	gal/hr
Capacity per Pump	197.5	gpm
Capacity per Pump	0.44	cfs

Gr	oundwater Well Sizing	
	Tract B/C	
Tract B Phase 4	9305314	gal/yr
Tract C Phase 3	14652591	gal/yr
Tract C Phase 4	12149331	gal/yr
Tract C Phase 5	44385882	gal/yr
Tract C Phase 6	4416748	gal/yr
Evaportation	19942081.2	gal/yr
Total Water Demand:	104851947.2	gal/yr
Water Demand per Well:	52425973.6	gal/yr
Water Demand per Well:	160.9	ac-ft
Demand per Day	143632.8	gal/well/day
Pump Run Time	16	hrs
Pump Capcity	8977.1	gal/hr
Capacity per Pump	150	gpm
Capacity per Pump	0.33	cfs

Irrigat	tion System Sizing			
Tract A/B				
Tract A Phase 1	42896185	gal/yr		
Tract A Phase 2	25504421	gal/yr		
Tract B Phase 2	10563496	gal/yr		
Tract B Phase 3	30668215	gal/yr		
Total Irrigation Demand	109632317	gal/yr		
Irrigation Demand per Hour*	57100.17	gal/hr		
Irrigation Demand per Minute	951.67	gpm		
Irrigation Demand per Irrigation Point	476	gpm		

<sup>\*</sup> These calculations assume that irrigation will occur for 8 hours a day, 6 days a week for 10 months of the year

Irrigat	ion System Sizing				
Tract B/C					
Tract B Phase 4	9305314	gal/yr			
Tract C Phase 3	14652591	gal/yr			
Tract C Phase 4	12149331	gal/yr			
Tract C Phase 5	44385882	gal/yr			
Tract C Phase 6	4416748	gal/yr			
Total Irrigation Demand	84909866	gal/yr			
Irrigation Demand per Hour*	44223.89	gal/hr			
Irrigation Demand per Minute	737.06	gpm			
Irrigation Demand per Irrigation Point	369	gpm			

<sup>\*</sup> These calculations assume that irrigation will occur for 8 hours a day, 6 days a week for 10 months of the

#### **Ramble Irrigation Calculations**

#### Memoranda of Understanding

#### Section 1. Introduction

This Memorandum of Understanding (MOU) is made effective as of February 19, 2025.

#### Section 2. The Purpose

- 1. The purpose of this MOU is to clarify the calculation for the irrigation load figure. Specifically, the use of these calculations for a Water Rights Permit to accurately reflect the actual irrigation usage patterns.
- Previously derived calculations account for the total annual water in gallons per minute (gpm) by dividing the total annual water in gallons by 365 days, 24 hours per day, and 60 minutes per hour. This number is not an accurate description of the total annual water being requested, as it does not account for seasonal irrigation schedules and varying capacity.

#### Section 3. Calculation Clarifications

- 1. It has identified that the method previously used to calculate the irrigation load does not accurately reflect the actual irrigation practices and usage patterns. The current calculation assumes a consistent, year-round irrigation operation, which is not representative of seasonal irrigation schedule. The assumption are as follows:
  - a. Seasonal Irrigation:
    - i. Irrigation occurs for approximately 8 months per year, not year-round.

#### b. Operational Hours:

- i. During peak demand scenarios, the irrigation system operates for a maximum of 10 hours per day.
- ii. This operation time is significantly reduced during the off-peak months, further skewing the overall annual water usage calculation if a constant 24-hour operation model is applied.
- 2. The agreed-upon approach shall consider the following,
  - a. Seasonal nature of the irrigation schedule,
  - b. Varying capacity usage,
  - c. Daily irrigation system operational hours, and
  - d. Daily groundwater well operational hours.

#### Section 4. Proposed Approach

- 1. To reach the best reflection of the actual irrigation usage patterns, the revised approach should involve the following steps:
  - a. Adjusting for Seasonality:
    - i. A proportional calculation that focuses on the 8 active irrigation months,

- with a weighted average applied for both peak demand occurrences (when full well capacity is used), and the off-peak demand occurrences (with reduced irrigation hours).
- ii. This will ensure that calculations more closely reflect the actual maximum annual usage.

#### b. Peak and Off-Peak Differentiation:

- Establish distinct operational periods—peak (full well capacity), mid (partial well capacity), and off-peak (minimal well capacity)—to account for varying irrigation needs.
- ii. This differentiation will provide a more accurate estimate of water usage over the course of the year.

#### c. Daily Hour Adjustment:

- i. Incorporate the actual hours of operation per day during peak and offpeak occurrences into the demand calculations.
- ii. This will more accurately reflect daily water usage and ensure that peak demands are calculated in line with actual operational hours.

#### d. Well Operation Adjustment:

- i. Account for the wells operational hours to be independent from the irrigation system hours.
- ii. Account for the wells to be sized for continuous or intermittent operation throughout the year, even during periods when the irrigation system is not in use.
- iii. The well capacities need to account for surface water level maintenance and compensate for evaporation losses, outside of the irrigation usage.
- This approach will provide a balance between accuracy and practicality, ensuring that
  the irrigation system and wells are properly sized to meet both peak demand and longterm operational efficiency, while avoiding overestimation of water usage during offpeak periods.

## **APPENDIX B**

## EXISTING ADJACENT GROUNDWATER WELL DATA

## WELL 1842301

## ANTLERS AQUIFER

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Water Availability Division

Accessed: 10/14/2024

Source: TWDB

TEXAS WATER DEVELOPMENT BOARD

WELL SCHEDULE

4152125						
Agutser Torrights.	Field No.	State Wel	1 No. 18 -42	- 301		
	Owner's Well No 2		COLLIN			
1. Location: 1/L, 1/h Sec.	Block Survey					7
Carries South I	Gurtor	****	· · · · · · · · · · · · · · · · · · ·	L-4-	1-4	
				1	i	
	Address:Address				1	1
Tenant:	Address:		777			
	5_Co., Inc. Address: Box 98,				T~T	1
3. Elevation of	is_/80_ ft. above msl, determine	d by	0.69	li	ـــنــــ	]
4. Drillod G JAN 1972		- [	CASING & BIAN	K PIPE		1
5. Depth: Rept. 2/80 ft. Mess.	<u>-</u> ft.	Cemented Diam.	From On	to 200	<u>50</u> ft.	]
6. Completion: Open Hole Straight Wall, Under		(in.)	-17pe	from	to	1
7. Pump: Migr. Red JACK	ET Type Subm	8 7/8	1 1			
No. Stages , Bowls Diam. in.	, Settingft.	8. 8	1_Steel_	$1_{-}$	1912	
Column Diamin., Length Tai	Lipipsn.					
	Model HP. 40	7	1.	7.10	2180	
9. Yield: Plowgpm, Pumpgpm,				1		
10. Performance Test: Date 1-72 Length	of Test 12 hrs Hade by W. O. Mitche	71				
Static Level 3/5 ft. Pumping Level 44			<b></b>			
Production 175 gpm Specific C						
		<del></del>		. ab	ove	3
11. Water Level: 3/5 ft( rept. 1-70 meas. 3-10 meas. 3-10	17 July All Line RPD	Ka	witten 15	be	low surface,	
meas.	below Diktille	(LE	water is	be	low	
rept.	bel ov		which is	UE	ove surface.	
ft, Fept.	DETOM		which is		low surface.	
12. Use: Dom., Stock (Public Supply.) Ind.,		J,			*	
13. Quality: (Remarks on teste, odor, color, sto						
Temp °F, Hate sampled for analysis/	-24-72 Laboratory Page Testing		WELL SCRE	EN .	<del></del>	ł
Temp. *F, Date sampled for analysis	Laboratory	Diam.	n Openings Type	Settin	g. (t.	
Temp 'F, Date sampled for analysis_		(in.)	<b>_</b>	from	lo	
16. Other data available as circled: (Briller's I	og, Radioactivity Log, Electric Log, Q-3	7 7	5.5. WN			
Formation Samples, Pumping Test,			Service	2000	2180	
15. Record by: P.L. NOROSTROY	C Date _ Y-15 1976	2				
Source of Data Gunter Water	Supt. Obs		l			
16. Remerket						
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GUN	TER				CETV	
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5.6	GRAVSON		Z 0.5	^	500	
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, <b>4</b> }	COLLIN	7 112	וווע	4-	- /	
Maa	1	N AT	וחר			
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	1 \$500		75/4			
TWDBE-WD-2	Alla School	;		÷		
TWDBE-WD-2	Ala Schoel	:	0.0	18-4	12-30	7

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ind original copy by errified mail to the dexes Water Development Board	Que State o	f Toxas	······································	Located o	18-42-3A
. O. Box 12385 watia, Taxas 78711	TE 11150 HATER HAZ	L REPORT	850	Rocelvod:	72.7
	DUNCE WY				
	(X=)	Address Gunt (Street or		(City)	(State)
Lendowner Town of Gunt		Addraps (Street or	RED)	(C(17)	(State)
E)LOCATION OF WELL:  COUNTY COLLINS			direction from G		ras Toma)
Locate by skatch map showing fundmental bively number, atc."	the, roads, sreeks,	or Give lagal locati	on with distances or survey lines.		
		Labor		League	
	Hoxth	Aloca		Survey	
	4	Aberract No			
(Vee reverse side if necessi	ury)	(may wef 2m/ 2m/)	of Section.	·	<del></del>
) TYPE OF WORK (Check):	4)PEOPOSED USE (Check) Domestic Indust		5) TIPE OF MELL (	(Chack): Driven	Dug
Reconditioning Plugging	Irrigation Test		Cable	Jacked	Borad
Diameter of bale 9 7/8 ta. :	menth drilled 2188 fr.	Danch of completed well	2180 #	. Date drille	4 3/6/72
( <del>)</del>	ill measurements made from				
	stion and color of setion material	9) Casing: Type: Dld	New Micrel	Plastic	Orber
0- 470 Shale		Comented from	. 0	ft. to	2060 ft
470- 493 Sand		Diameter	Satting	·	-
493- 610 Shale				To (ft.)	Gage
510-540 Sand 640-900 Chalo 6 14		1,067.71' of 7			
900- 958 Sand		992,29' of 8	3/8		······································
958-1415 Shale & 1to	ne	10) SCREER:			
1415-1480 Sand	2	10) SCREEN: Type Stainles	s steel wire-		
1480-1550 Shale		Perforated		Slotted	
1550-1725 Sand		Dismeter (inches) F	100 (ft.) Sea 2050	To (ft.) 218	30 Sist. 020
1725-2060 Shale & lin	<u> </u>				*
2060-2180 Sand		<del> </del>			
(Une reverse side if to COMPLETION (Check):	recolbeil)	II) WELL TESTS;			
Straight wall Wravel packed	Other	Ves a pump test ma	W. O. Mite	no li yea	, by whom?
linder remad Open Bol	ie.	Ytele: 175	spa with 134	ft, drawdown	after 12_hrs
Static level 315 fc. below las	nd surface Date 1/20/72	Bailer test	gpm with	it.drawdown a	fterhra
Artesian pressurelhs. per se	quere inch Date	Artesian flow	(57m)		
Depth to pump bowls, cylinder, jet	etc.,fc.	Temperature of wat	er		
balow land surface.		12) WATER QUALITY: Was a chemical sna	lysis made?	y.	tio
		Did any strate con			a 1376
I heraby co	errify that this well was drill	ed by me (or under my sup		th of strate_	
NAME Preston Niette	ll of the atatements herein are	true to the best of my k secen Well Drillers Regist	nowledge and belie	ıf,	
(Type or Print) ADDRESS P. O. Zok 98	Shrevepo				A
(Street of UD)	V a (CIE)		/1101	(State)	
(Signed) Mostore (Water Well Dr.	iller	Lanford Dr	(Company Name)	y. Inc.	
Please attach electric log, chemical	analysis, and other pertinent t	information, if available.	DT18.	-42-3	301

Q-37

RECEIVED
MAR 13 2025
Water Availability Division

TVDBE-OV-53

Typewrite (Black ribbon) or Print Plainly (soft pencil or black ink) Do not use ball point pen

Pope Testing Lab.

TWDBE-G	W ONLY
Program No	
Proj. No	

CHEMICAL WATER	ANALYSIS REPORT	Callin
Send report to:		ounty DT Collin
Ground Weter Data and Protection Division Texas Water Development Board	S	tate Well No. 18-42-301
7.0. BOX 13087	MAR 13 2025	Well No.
Acestin, Texas 78711	MAN 13 LULJ	ate Collected 01-24-72
(A)	Vator Availability Division	ate Collected
Location 5/2 mi. South of Gunter	B1	Lanford Drlg. Co.
Source (type of well) SubElect. Owner C	ounter W.S.C.	
Date Drilled 1-6-72 Depth 2180 ft. WBF 4		
Producing intervals 2060-2(80 Water level 315		$\Pi\Pi$
Sampled after pumping hrs. Yield		
Point of collection		clear turbid colored cother
Use P. S. Remarks		
(FOR LABORATORY USE ONLY)		
CHEMICAL	ANALYSIS MEY PUNCHES	
Laboratory No Date Received _	The same of the sa	Date Reported
MG/L ME/L		MG/L ME/L
Silica · · · · · · ·	Carbonate · · · · ·	41
Calcium · · · · · · ·	Bicarbonate	557
Magnesium · · · · · · ·	Sulfate · · · · · ·	79
Sodium	Chloride · · · · ·	23
Total	Fluoride · · · ·	3.0
□ Potassium · · · · ·	Nitrate	0.5
Manganese · · · · · · · · · · · · · · · · · ·	рн	8 . S Total
□ Boron	y Dissolved Solids (sum in MG/L).	itil 996
Total Iron · · · · · · · · · · · · · · · · · · ·	Phenolphthalein Alkalinity as C aC	
(other) MG/L	Total Alkalinity as C aCO3 · ·	525
Specific Conductance (micromhos/cm <sup>3</sup> ) · · · · · · III 0 0	Total Hardness as CaCO <sub>3</sub> · ·	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
Diluted Conductance (micromhos/cm <sup>3</sup> )	2/ Nitrogen Cyc	
items will be analyzed if checked.	Nitrite - N · · · · · · ·	
If The bicarbonate reported in this analysis is converted by computation (multiplying by 0.4917) to an equivalent amount of carbonate, and the bestbonate figure is used in the computation of this sum.	Nitrate - N	
2/ Nitrogen cycle requires separate sample. 3/ Total Iron requires separate sample.	Organic Nitrogen · · · · ·	
TWDBE-WD-1 (Rev. 1-25-72)	Analyst	Chacked By





#### Water Quality Analysis

Sample Date: 1/24/1972

Sample Time:

0000 Sample Number:

Collection Entity: Registered Water Well Driller

Sampled Aquifer:

Antlers Sand

No Data

Analyzed Lab: Pope Testing Lab

Reliability: Reliability unknown or not available

Collection Remarks:

Parameter Code	Parameter Description F	lag	Value*	Units	Plus/Minus
00415	ALKALINITY, PHENOLPHTHALEIN (MG/L)		34	mg/L	
00410	ALKALINITY, TOTAL (MG/L AS CACO3)		525	mg/L as CACO 3	
00440	BICARBONATE ION, CALCULATED (MG/L AS HCO3)		557.7	mg/L	
00910	CALCIUM (MG/L)		3	mg/L	
00445	CARBONATE ION, CALCULATED (MG/L AS CO3)		40.8	mg/L	
00940	CHLORIDE, TOTAL (MG/L AS CL)		23	mg/L	
00950	FLUORIDE, DISSOLVED (MG/L AS F)		3	mg/L	
00900	HARDNESS, TOTAL, CALCULATED (MG/L AS CACO3) RECEIVED  IRON, TOTAL (UG/L AS FE)  MAR 13 2025		11	mg/L as CACO 3	
01045	IRON, TOTAL (UG/L AS FE)		400	ug/L	
00920	MAGNESIUM (MG/L)  MANGANESE TOTAL (LIGH AS MAN)  Water Availability Divis	sion	1	mg/L	
01055	MANGANESE, TOTAL (UG/L AS MN)		0	ug/L	
71851	NITRATE NITROGEN, DISSOLVED, CALCULATED (MG/L AS NO3)		0.5	mg/L as NO3	
00400	PH (STANDARD UNITS), FIELD		8.5	SU	
71860	RESIDUAL SODIUM CARBONATE, CALCULATED		10.27		
00931	SODIUM ADSORPTION RATIO, CALCULATED (SAR)		36.78		
00932	SODIUM, CALCULATED, PERCENT		98	PCT	
00929	SODIUM, TOTAL (MG/L AS NA)		288	mg/L	
00094	SPECIFIC CONDUCTANCE, FIELD (UMHOS/CM AT 25C)		1100	MICR	
00945	SULFATE, TOTAL (MG/L AS SO4)		79	mg/L as SO4	
70301	TOTAL DISSOLVED SOLIDS, SUM OF CONSTITUENTS (MG/L)		712	mg/L	

<sup>\*</sup> Value may not display all significant digits for parameter in results, check Scanned Documents for laboratory paperwork..

GWDB DISCLAIMER: Except where noted, all of the information provided in the Texas Water Development Board (TWDB) Groundwater Database (https://www.twdb.texas.gov/groundwater/data/gwdbrpt.asp) is believed to be accurate and reliable; however, the TWDB assumes no responsibility for any errors appearing in rules or otherwise. Further, TWDB assumes no responsibility for the use of the information provided. PLEASE NOTE that users of these data are responsible for checking the accuracy, completeness, currency and/or suitability of all information themselves. TWDB makes no guarantees or warranties as to the accuracy, completeness, currency, or suitability of the information provided via the Groundwater Database (GWDB). TWDB specifically disclaims any and all liability for any claims or damages that may result from providing GWDB data or the information it contains. For additional information or answers to questions concerning the TWDB GWDB, contact the Groundwater Data Team at GroundwaterData@twdb.texas.gov.

## WELL 1843101

## TWIN MOUNTAINS AQUIFER



Accessed: 10/14/2024

Source: TWDB





#### **GWDB** Reports and Downloads

#### **Well Basic Details**

#### Scanned Documents

State Well Number	1843101
County	Collin
River Basin	Trinity
Groundwater Management Area	8
Regional Water Planning Area	C - Region C
Groundwater Conservation District	North Texas GCD
Latitude (decimal degrees)	33.341389
Latitude (degrees minutes seconds)	33° 20' 29" N
Longitude (decimal degrees)	-96.730278
Longitude (degrees minutes seconds)	096° 43' 49" W
Coordinate Source	Global Positioning System - GPS
Aquifer Code	218TWMT - Twin Mountains Formation
Aquifer	Trinity
Aquifer Pick Method	
Land Surface Elevation (feet above sea level)	762
Land Surface Elevation Method	Digital Elevation Model -DEM
Well Depth (feet below land surface)	2445
Well Depth Source	Driller's Log
Drilling Start Date	
Drilling End Date	4/28/2000
Drilling Method	Mud (Hydraulic) Rotary
Borehole Completion	Gravel Pack w/Screen

Well Type	Withdrawal of Water
Well Use	Public Supply
Water Level Observation	Miscellaneous Measurements
Water Quality Available	Yes
Pump	Submersible
Pump Depth (feet below land surface)	1250
Power Type	Electric Motor
Annular Seal Method	
Surface Completion	
Owner	Marilee SUD Well #5
Driller	Tim Hall, Inc.
Other Data Available	Drillers Log; Specific Capacity
Well Report Tracking Number	
Plugging Report Tracking Number	
U.S. Geological Survey Site Number	
Texas Commission on Environmental Quality Source Id	G0910081E
Groundwater Conservation District Well Number	RECEIVED
Owner Well Number	5 MAR 1 3 2025
Other Well Number	10 5050
Previous State Well Number	Water Availability Division
Reporting Agency	Texas Commission on Environmental Quality
Created Date	3/17/2011
Last Update Date	6/30/2016

Remarks

Reported yield 181 GPM with 252 feet drawdown after pumping 36 hours in 2000. Specific capacity 0.72 GPM/ft. Pumping level 983 feet.Cemented from 0 to 2040 feet. Gravel packed from 2040 to 2445 feet. Well originally drilled for Gunter Rural Water Supply.

Casing						
Diameter (in.)	Casing Type	Casing Material	Schedule	Gauge	Top Depth (ft.)	Bottom Depth (ft.)
9	Blank	Steel				2120
20	Blank	Steel			0	
13	Blank	Steel			0	
9	Screen				2120	2150
9	Blank	Steel			2150	229
. 9	Screen				2295	2318
9	Blank	Steel			2315	2325
9	Screen				2325	2345
9	Blank	Steel			2345	2355
9	Screen				2355	2375
9	Blank	Steel			2375	2420
9	Screen	200			2420	2440
9	Blank	Steel			2440	244





#### Water Quality Analysis

Sample Date: 2/18/2004

Sample Time:

Sample Number:

Collection Entity: Municipal Water Agency or Public Water

Supply Corp

Sampled Aquifer:

Twin Mountains Formation

Analyzed Lab: Laboratory Unknown

Reliability: Reliability unknown or not available

Collection Remarks:

No Data

Parameter Code	Parameter Description	Flag	Value*	Units	Plus/Minus
00410	ALKALINITY, TOTAL (MG/L AS CACO3)		364	mg/L as CACO 3	
01105	ALUMINUM, TOTAL (UG/L AS AL)	<	20	ug/L	
01097	ANTIMONY, TOTAL (UG/L AS SB)	<	3	ug/L	
01002	ARSENIC, TOTAL (UG/L AS AS)	<	2	ug/L	
01007	BARIUM, TOTAL (UG/L AS BA)	1	25.6	ug/L	
01012	BERYLLIUM, TOTAL (UG/L AS BE)	<	1	ug/L	
00440	BICARBONATE ION, CALCULATED (MG/L AS HCO3)		403	mg/L	, , , , , , , , ,
01027	CADMIUM, TOTAL (UG/L)	<	1	ug/L	i en
00916	CALCIUM, TOTAL (MG/L AS CA)	1	1.67	mg/L	
00445	CARBONATE ION, CALCULATED (MG/L AS CO3)	,	20	mg/L	
00940	CHLORIDE, TOTAL (MG/L AS CL)		24	mg/L	
01034	CHROMIUM, TOTAL (UG/L AS CR)	> 200:	10	ug/L	
01042	COPPER, TOTAL (UG/L AS CU)	VISIO	0.0044	ug/L	
00951	FLUORIDE, TOTAL (MG/L AS F)		0.7	mg/L	
00900	CADMIUM, TOTAL (UG/L)  CALCIUM, TOTAL (MG/L AS CA)  CARBONATE ION, CALCULATED (MG/L AS CO3)  CHLORIDE, TOTAL (MG/L AS CL)  CHROMIUM, TOTAL (UG/L AS CR)  COPPER, TOTAL (UG/L AS CU)  FLUORIDE, TOTAL (MG/L AS F)  HARDNESS, TOTAL, CALCULATED (MG/L AS CACO3)  IRON (UG/L AS FE)  LEAD, TOTAL (UG/L AS PB)  MAGNESIUM, TOTAL (MG/L AS MG)		4.17	mg/L as CACO 3	
71885	IRON (UG/L AS FE)		17	ug/L	
01051	LEAD, TOTAL (UG/L AS PB)	<	1	ug/L	
00927	MAGNESIUM, TOTAL (MG/L AS MG)	<	1	mg/L	
01055	MANGANESE, TOTAL (UG/L AS MN)	<		ug/L	
71900	MERCURY, TOTAL (UG/L AS HG)	<	0.4	ug/L	
01067	NICKEL, TOTAL (UG/L AS NI)	<	1	ug/L	
00620	NITRATE NITROGEN, TOTAL (MG/L AS N)	<	0.01	mg/L as N	
00615	NITRITE NITROGEN, TOTAL (MG/L AS N)	<	0.01	mg/L as N	
00403	PH (STANDARD UNITS) LAB		8.5	SU	
01147	SELENIUM, TOTAL (UG/L)	<	3	ug/L	
01077	SILVER, TOTAL (UG/L AS AG)	<	10	ug/L	
00929	SODIUM, TOTAL (MG/L AS NA)		217	mg/L	
00945	SULFATE, TOTAL (MG/L AS SO4)		89	mg/L as SO4	
01059	THALLIUM, TOTAL (UG/L AS TL)	<	1	ug/L	





Parameter Code	Parameter Description	Flag	Value*	Units	Plus/Minus
70301	TOTAL DISSOLVED SOLIDS, SUM OF CONSTITUENTS (MG/L)		553	mg/L	
01092	ZINC, TOTAL (UG/L AS ZN)	<	5	ug/L	

## WELL 1842302

## TWIN MOUNTAINS AQUIFER

RECEIVED
MAR 13 2025
Water Availability Division

Accessed: 10/14/2024

Source: TWDB



#### **Texas Water Development Board** Well Schedule



State Well Number:

18-42-302

Previous Well Number:

County: Collin

85

Latitude (dms): 332007

Longitude (dms):

964540

Coordinate Accuracy: Global Positioning System - GPS

River Basin: Trinity River

GMA: 8

RWPA: C

GCD: North Texas GCD

Owner: City of Celina

Driller: Strittmatter Irr. &

Aquifer ID: Trinity

Well #4

Supply Inc.

Aquifer Code: 218TWMT

Depth (ft): 2398

Elevation (ft): 798

**TWIN MOUNTAINS** 

**FORMATION** 

Source of Depth: Driller's Log

Source of Elevation: Digital Elevation

Model -DEM

Date Drilled: 02/02/1987

Well Type: Withdrawal of Water

Type of Lift: Submersible Pump

Power: Electric Motor

Horsepower: 100.00

Construction: Hydraulic Rotary

Completion: Gravel Pack w/Screen

Casing Material: Steel

Screen Material: Steel

WATER USE

Primary:

Public Supply Secondary:

Tertiary:

CASING INTERVALS: Casing/Blank Pipe (C) Well Screen/Slotted Zone (S) Open Hole (O) **Bottom** 

	(in.)	(ft.)	(ft.)
C	7	0	2199
S	7	2199	2270
C	7	2270	2284
S	7	2284	2294
C	7	2294	2306
S	7	2306	2369
C	7	2369	2390

Water Levels: TWDB Current Observation Well

Water Quality: Y

19 measurements 1993 to 2010

MIN -880 MAX -507

Other Data:

Logs: D

Water Availability Division

REMARKS:

Owners well #4. PWS ID #0430003D. Pump set at 833 feet. Cemented from 0 to 2183 feet. Gravel packed from 2183 to 2398 feet. Current observation well.

Reporting Agency: TWDB or Predecessor

Agency

Date Collected or Reported: 10/19/1994

Recorded by: D. R. Jones

Monday, January 31, 2011

State Well Number:

18-42-302

update





#### Water Quality Analysis

Sample Date: 3/12/1987

Sample Time:

Sample Number: 1 0000

Collection Entity: Registered Water Well Driller

Sampled Aquifer: Twin Mountains Formation

Analyzed Lab: Pope Testing Lab

Reliability:

Collection Remarks:

No Data

Parameter Code	Parameter Description	Flag	Value*	Units	Plus/Minus
00415	ALKALINITY, PHENOLPHTHALEIN (MG/L)		6	mg/L	
00410	ALKALINITY, TOTAL (MG/L AS CACO3)		338	mg/L as CACO 3	
00440	BICARBONATE ION, CALCULATED (MG/L AS HCO3)		397.83	mg/L	
00910	CALCIUM (MG/L)		4.8	mg/L	
00445	CARBONATE ION, CALCULATED (MG/L AS CO3)		7.2	mg/L	
00940	CHLORIDE, TOTAL (MG/L AS CL)		26	mg/L	
00950	FLUORIDE, DISSOLVED (MG/L AS F)		0.9	mg/L	
00900	HARDNESS, TOTAL, CALCULATED (MG/L AS CACO3)  RECEIVED  IRON, TOTAL (UG/L AS FE)  MAR 13 2025		19	mg/L as CACO 3	
01045	IRON, TOTAL (UG/L AS FE) MAR 13 Sivision	4	250	ug/L	
00920	IRON, TOTAL (UG/L AS FE)  MAR 13 LOLD  MAGNESIUM (MG/L)  MARGANESE, TOTAL (UG/L AS MN)  Water Availability Division		1.9	mg/L	
01055	MANGANESE, TOTAL (UG/L AS MN) WE'TE AVE	<	50	ug/L	
71851	NITRATE NITROGEN, DISSOLVED, CALCULATED (MG/L AS NO3)	<	0.04	mg/L as NO3	
00400	PH (STANDARD UNITS), FIELD		8.4	SU	
71860	RESIDUAL SODIUM CARBONATE, CALCULATED		6.36		
00931	SODIUM ADSORPTION RATIO, CALCULATED (SAR)		22.04		
00932	SODIUM, CALCULATED, PERCENT		96	PCT	
00929	SODIUM, TOTAL (MG/L AS NA)		225.4	mg/L	
00094	SPECIFIC CONDUCTANCE, FIELD (UMHOS/CM AT 25C)		950	MICR	
00945	SULFATE, TOTAL (MG/L AS SO4)		130	mg/L as SO4	
70301	TOTAL DISSOLVED SOLIDS, SUM OF CONSTITUENTS (MG/L)		591	mg/L	





#### Water Quality Analysis

Sample Date: 6/6/2019

Sample Time:

1656

Sample Number: 1

Collection Entity: Texas Water Development Board

Sampled Aquifer:

Twin Mountains Formation

Analyzed Lab: LCRA - Lower Colorado River Authority

Reliability: Sampled using TWDB protocols

Collection Remarks:

Lab Calculated Anion/Cation Chg Bal set to TWDB Calculated Value due to an error in the lab calculated formula

Parameter Code	Parameter Description	Flag	Value*	Units	Plus/Minus
39086	ALKALINITY FIELD DISSOLVED AS CACO3		348	mg/L as CACO 3	
00425	ALKALINITY, BICARBONATE DISSOLVED (MG/L), LAB		320	mg/L	
00430	ALKALINITY, CARBONATE DISSOLVED (MG/L), LAB		12.2	mg/L	
00420	ALKALINITY, HYDROXIDE DISSOLVED (MG/L), LAB		0	mg/L	
00415	ALKALINITY, PHENOLPHTHALEIN (MG/L)		6.08	mg/L	
00410	ALKALINITY, PHENOLPHTHALEIN (MG/L)  ALKALINITY, TOTAL (MG/L AS CACO3)  ALUMINUM, DISSOLVED (UG/L AS AL)  ANIONICATION CHO BAL DEPOENT.  ANIONICATION CHO BAL DEPOENT.	ED	332	mg/L as CACO 3	
01106	ALUMINUM, DISSOLVED (UG/L AS AL)  ANION/CATION CHG BAL, PERCENT  ANTIMONY, DISSOLVED (UG/L AS SB)	<	5	ug/L	
50938	ANION/CATION CHG BAL, PERCENT	i-	-6.8955	PCT	
01095	ANTIMONY, DISSOLVED (UG/L AS SB)	ion <	1	ug/L	
01000	ARSENIC, DISSOLVED (UG/L AS AS)	<	1	ug/L	
01005	BARIUM, DISSOLVED (UG/L AS BA)		10.2	ug/L	
01010	BERYLLIUM, DISSOLVED (UG/L AS BE)	<	1	ug/L	
00440	BICARBONATE ION, CALCULATED (MG/L AS HCO3)		390.315	mg/L	
01020	BORON, DISSOLVED (UG/L AS B)		466	ug/L	
71870	BROMIDE, DISSOLVED, (MG/L AS BR)		0.0631	mg/L	
01025	CADMIUM, DISSOLVED (UG/L AS CD)	<	1	ug/L	
00915	CALCIUM, DISSOLVED (MG/L AS CA)		4.6	mg/L	
00445	CARBONATE ION, CALCULATED (MG/L AS CO3)		7.296	mg/L	
00941	CHLORIDE, DISSOLVED (MG/L AS CL)		11.4	mg/L	
01030	CHROMIUM, DISSOLVED (UG/L AS CR)	<	1	ug/L	
01035	COBALT, DISSOLVED (UG/L AS CO)	<	1	ug/L	
01040	COPPER, DISSOLVED (UG/L AS CU)	<	1	ug/L	
00950	FLUORIDE, DISSOLVED (MG/L AS F)		0.822	mg/L	
00900	HARDNESS, TOTAL, CALCULATED (MG/L AS CACO3)		17.778	mg/L as CACO 3	
01046	IRON, DISSOLVED (UG/L AS FE)		65.9	ug/L	
01049	LEAD, DISSOLVED (UG/L AS PB)	<	1	ug/L	
01130	LITHIUM, DISSOLVED (UG/L AS LI)		27.6	ug/L	
00925	MAGNESIUM, DISSOLVED (MG/L AS MG)		1.48	mg/L	
1056	MANGANESE, DISSOLVED (UG/L AS MN)		9.08	ug/L	
71890	MERCURY, DISSOLVED (UG/L AS HG)	<	0.2	ug/L	
1060	MOLYBDENUM, DISSOLVED (UG/L AS MO)	<	1	ug/L	





Parameter Code	Parameter Description	Flag	Value*	Units	Plus/Minus
71851	NITRATE NITROGEN, DISSOLVED, CALCULATED (MG/L AS NO3)	<	0.02	mg/L as NO3	
00631	NITRITE PLUS NITRATE, DISSOLVED (MG/L AS N)	<	0.02	mg/L as N	
00400	PH (STANDARD UNITS), FIELD		8.38	SU	
00666	PHOSPHORUS, DISSOLVED (MG/L AS P)	<	0.02	mg/L as P	
00935	POTASSIUM, DISSOLVED (MG/L AS K)		1.92	mg/L	
71860	RESIDUAL SODIUM CARBONATE, CALCULATED SELENIUM, DISSOLVED (UG/L AS SE)		6.289		
01145	SELENIUM, DISSOLVED (UG/L AS SE)	/ <	5	ug/L	
00955	SILICA, DISSOLVED (MG/L AS SI02)  MAR 13 2025		13.1	mg/L as SIO2	
01075	SILVER, DISSOLVED (UG/L AS AG) Water Availability Division	n <	1	ug/L	
00931	SODIUM ADSORPTION RATIO, CALCULATED (SAR)		19.824		
00932	SODIUM, CALCULATED, PERCENT		95.943	PCT	
00930	SODIUM, DISSOLVED (MG/L AS NA)		191	mg/L	
00094	SPECIFIC CONDUCTANCE, FIELD (UMHOS/CM AT 25C)		1024	MICR	
01080	STRONTIUM, DISSOLVED (UG/L AS SR)		170	ug/L	
00946	SULFATE, DISSOLVED (MG/L AS SO4)		144	mg/L as SO4	
00010	TEMPERATURE, WATER (CELSIUS)		34	С	
01057	THALLIUM, DISSOLVED (UG/L AS TL)	<	1	ug/L	
70301	TOTAL DISSOLVED SOLIDS , SUM OF CONSTITUENTS (MG/L)		567.706	mg/L	
22703	URANIUM, NATURAL, DISSOLVED (UG/L AS U)	<	1	ug/L	
01085	VANADIUM, DISSOLVED (UG/L AS V)	<	1	ug/L	
01090	ZINC, DISSOLVED (UG/L AS ZN)	<	5	ug/L	

<sup>\*</sup> Value may not display all significant digits for parameter in results, check Scanned Documents for laboratory paperwork..

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### WELL 1842602

## TWIN MOUNTAINS **AQUIFER**

RECEIVED

MAR 13 2025

Water Availability Division

Accessed: 10/14/2024

Source: TWDB



#### **Texas Water Development Board** Well Schedule



State Well Number:

18-42-602

Previous Well Number:

County: Collin

85

Latitude (dms): 331917

Longitude (dms):

Coordinate Accuracy: Global Positioning System - GPS

River Basin: Trinity River

GMA: 8

964705

RWPA: C

GCD: North Texas GCD

Owner: City of Celina

Well #2

Driller: J.L. Myers

Aquifer ID: Trinity

Aquifer Code: 218PLXY

PALUXY

Depth (ft): 1541

Elevation (ft): 691

SAND

Source of Depth: Driller's Log

Source of Elevation: Digital Elevation

Model -DEM

Date Drilled: 06/00/1925

Well Type: Withdrawal of Water

CASING INTERVALS: Casing/Blank Pipe (C) Well Screen/Slotted Zone (S)

Open Hole (O) Dia.

(in.)

Type of Lift: Submersible Pump

Power: Electric Motor

Horsepower: 15.00

Top **Bottom** (ft.) (ft.)

Construction: Hydraulic Rotary

Completion: Perforated or Slotted

Casing Material: Steel

Screen Material: Steel

C 8 0 1321 C 1301 1370 7 S 1370 1462

C S

6 1462 1483 1483 1501 6

WATER USE

Primary:

Public Supply Secondary:

Tertiary:

1501 1541

Water Levels: Miscellaneous Measurements

Water Quality: Y

RECEIVED

4 measurements 1928 to 2001

MIN -235 MAX -170

Other Data:

Logs: D

MAR 13 2025

Water Availability Division

REMARKS:

Casing perforated. Pump set at 422 ft. Reported yield 110 gpm in 1956. Owners well #2. PWS ID #0430003B. This well originally assigned as Woodbine, but in going through records and drilling company's files, this well is a Paluxy well. Confirmed by Joseph Johnson (Water Supt.) on 2/3/2011.

Reporting Agency: TWDB or Predecessor

Agency

Date Collected or Reported: 10/21/1997

Recorded by: D.R. Jones

Thursday, February 03, 2011

State Well Number:

18-42-602

upda





#### Water Quality Analysis

Sample Date: 9/10/2001

Sample Time:

1507

Sample Number: 1

Collection Entity: Texas Water Development Board

Sampled Aquifer:

Paluxy Sand

Analyzed Lab: LCRA - Lower Colorado River Authority

Reliability: Sampled using TWDB protocols

Collection Remarks:

No Data

Parameter Code	Parameter Description	Flag	Value*	Units	Plus/Minus
39086	ALKALINITY FIELD DISSOLVED AS CACO3		280	mg/L as CACO 3	
82244	ALKALINITY PHENOLPHTHALEIN FIELD DATA (MG/L)		6	mg/L	
00415	ALKALINITY, PHENOLPHTHALEIN (MG/L)		11.5	mg/L	
00410	ALKALINITY, TOTAL (MG/L AS CACO3)  RECEIVED		278	mg/L as CACO 3	
01106	ALUMINUM, DISSOLVED (UG/L AS AL) MAR 13 2025		5.57	ug/L	
01095	ANTIMONY, DISSOLVED (UG/L AS SB)	<	1	ug/L	
01000	ARSENIC, DISSOLVED (UG/L AS AS) Water Availability Division	<	2	ug/L	
01005	BARIUM, DISSOLVED (UG/L AS BA)	<	1	ug/L	
01010	BERYLLIUM, DISSOLVED (UG/L AS BE)	<	1	ug/L	
00440	BICARBONATE ION, CALCULATED (MG/L AS HCO3)		311.19	mg/L	
01020	BORON, DISSOLVED (UG/L AS B)		444	ug/L	
71870	BROMIDE, DISSOLVED, (MG/L AS BR)		0.0594	mg/L	
01025	CADMIUM, DISSOLVED (UG/L AS CD)	<	1	ug/L	
00915	CALCIUM, DISSOLVED (MG/L AS CA)		0.31	mg/L	
00445	CARBONATE ION, CALCULATED (MG/L AS CO3)		13.8	mg/L	
00941	CHLORIDE, DISSOLVED (MG/L AS CL)	14.5 (1.1)	10.6	mg/L	
01030	CHROMIUM, DISSOLVED (UG/L AS CR)	<	1	ug/L	
01035	COBALT, DISSOLVED (UG/L AS CO)	<	1	ug/L	
01040	COPPER, DISSOLVED (UG/L AS CU)		1.46	ug/L	
00950	FLUORIDE, DISSOLVED (MG/L AS F)		0.74	mg/L	
04241	GROSS ALPHA RADIATION, TOTAL, PRODUCED WATER(pCi/L)		0.2	pCi/L	0.8
04242	GROSS BETA RADIATION, TOTAL, PRODUCED WATER(pCi/L)		1.5	pCi/L	1.3
00900	HARDNESS, TOTAL, CALCULATED (MG/L AS CACO3)		1	mg/L as CACO 3	
01046	IRON, DISSOLVED (UG/L AS FE)	<	51	ug/L	
01049	LEAD, DISSOLVED (UG/L AS PB)	<	1	ug/L	
01130	LITHIUM, DISSOLVED (UG/L AS LI)		8.42	ug/L	
00925	MAGNESIUM, DISSOLVED (MG/L AS MG)	<	0.2	mg/L	
01056	MANGANESE, DISSOLVED (UG/L AS MN)		2.82	ug/L	
01060	MOLYBDENUM, DISSOLVED (UG/L AS MO)	<	1	ug/L	
01065	NICKEL, DISSOLVED (UG/L AS NI)	<	1	ug/L	

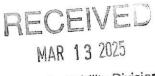




Parameter Code	Parameter Description	Flag	Value*	Units	Plus/Minus
71851	NITRATE NITROGEN, DISSOLVED, CALCULATED (MG/L AS NO3)	<	0.09	mg/L as NO3	
00631	NITRITE PLUS NITRATE, DISSOLVED (MG/L AS N)	<	0.02	mg/L as N	
00400	PH (STANDARD UNITS), FIELD		8.72	SU	
00935	POTASSIUM, DISSOLVED (MG/L AS K)		0.67	mg/L	
71860	RESIDUAL SODIUM CARBONATE, CALCULATED		5.53		
01145	SELENIUM, DISSOLVED (UG/L AS SE)	<	4	ug/L	
00955	SILICA, DISSOLVED (MG/L AS SI02)		13.9	mg/L as SIO2	
00931	SODIUM ADSORPTION RATIO, CALCULATED (SAR)		50.96		
00932	SODIUM, CALCULATED, PERCENT		99	PCT	
00930	SODIUM, DISSOLVED (MG/L AS NA)		148	mg/L	
00094	SPECIFIC CONDUCTANCE, FIELD (UMHOS/CM AT 25C)		666	MICR	
01080	STRONTIUM, DISSOLVED (UG/L AS SR)	<	20.4	ug/L	
00946	SULFATE, DISSOLVED (MG/L AS SO4)		52.7	mg/L as SO4	
00010	TEMPERATURE, WATER (CELSIUS)		26.8	С	
01057	THALLIUM, DISSOLVED (UG/L AS TL)	<	1	ug/L	
70301	TOTAL DISSOLVED SOLIDS, SUM OF CONSTITUENTS (MG/L)		394	mg/L	
01085	VANADIUM, DISSOLVED (UG/L AS V)	<	1	ug/L	
01090	ZINC, DISSOLVED (UG/L AS ZN)	<	4	ug/L	

<sup>\*</sup> Value may not display all significant digits for parameter in results, check Scanned Documents for laboratory paperwork...

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Water Availability Division

## **APPENDIX C**

# ADDITIONAL REFERENCE RESOURCES

# 2002 WATER QUALITY INVENTORY SEGMENT ID: 0823

MAR 13 2025
Water Availability Division

Accessed: 10/15/2024

Source: TWDB

Segment ID: 0823

Water body name: Lewisville Lake

Reservo	oir	Trinity River	· Basin Total size:		23,280	Acres		
Assessment Year	Assessment Method	Status of Use Support or Concern	Location	Location size	# of samples	# of exceedances	Mean	
Aquatic Life I	Jse							
2002	Dissolved Oxygen grab average	No Concern	Hickory Creek arm	2,616	31	0		
2002	Dissolved Oxygen grab average	No Concern	Little Elm Creek arm	3,589	10	0		
2002	Dissolved Oxygen grab average	No Concern	Lowermost portion of reservoir	5,736	10	0		
2002	Dissolved Oxygen grab average	No Concern	Middle portion of reservoir east of Lake Dallas	5,851	10	0		
2002	Dissolved Oxygen grab average	Not Assessed	Stewart Creek arm	1,528	5			
2002	Dissolved Oxygen grab minimum	Fully Supporting	Hickory Creek arm	2,616	31	0		
2002	Dissolved Oxygen grab minimum	Fully Supporting	Little Elm Creek arm	3,589	10	000	CEN	
2002	Dissolved Oxygen grab minimum	Fully Supporting	Lowermost portion of reservoir	5,736	10	0	·ULIV	
2002	Dissolved Oxygen grab minimum	Fully Supporting	Middle portion of reservoir east of Lake Dallas	5,851	10	o l	MAR 1 3 20	025
2002	Dissolved Oxygen grab minimum	No Concern-Limited Data	Stewart Creek arm	1,528	5	Water	Availability (	Divi
2002	Dissolved Oxygen 24hr average	Not Assessed	Hickory Creek arm	2,616	0			
2002	Dissolved Oxygen 24hr average	Not Assessed	Little Elm Creek arm	3,589	0			
2002	Dissolved Oxygen 24hr average	Not Assessed	Lowermost portion of reservoir	5,736	0			
2002	Dissolved Oxygen 24hr average	Not Assessed	Middle portion of reservoir east of Lake Dallas	5,851	0	Wai	J	
2002	Dissolved Oxygen 24hr average	Not Assessed	Stewart Creek arm	1,528	0	Water A	П	
2002	Dissolved Oxygen 24hr minimum	Not Assessed	Hickory Creek arm	2,616	0	×		
2002	Dissolved Oxygen 24hr minimum	Not Assessed	Little Elm Creek arm	3,589	0	<u> </u>		
2002	Dissolved Oxygen 24hr minimum	Not Assessed	Lowermost portion of reservoir	5,736	0	2025 ity Div		
2002	Dissolved Oxygen 24hr minimum	Not Assessed	Middle portion of reservoir east of Lake Dallas	5,851	0	ivis		
2002	Dissolved Oxygen 24hr minimum	Not Assessed	Stewart Creek arm	1,528	0	ion		
2002	Acute Metals in water	Not Assessed	Hickory Creek arm	2,616	1			
2002	Chronic Metals in water	Not Assessed	Hickory Creek arm	2,616	1			
2002	Overall Aquatic Life Use	Fully Supporting	Hickory Creek arm	2,616				

Segment ID:	0823 Water body	name: Lewisville	Lake				
Reserve	oir	Trinity River	Basin Total size:		23,280	Acres	
Assessment Year	Assessment Method	Status of Use Support or Concern	Location	Location size	# of samples	# of exceedances	Mean
Aquatic Life U	Use (continued)						
2002	Overall Aquatic Life Use	Fully Supporting	Little Elm Creek arm	3,589			
2002	Overall Aquatic Life Use	Fully Supporting	Lowermost portion of reservoir	5,736			
2002	Overall Aquatic Life Use	Fully Supporting	Middle portion of reservoir east of Lake Dallas	5,851			
2002	Overall Aquatic Life Use	Not Assessed	Remainder of reservoir	3,960	×	77	
2002	Overall Aquatic Life Use	Not Assessed	Stewart Creek arm	1,528	ater		
Contact Recre	eation Use	<u> </u>			Water Availability Division	80	1
2002	Overall Recreation Use	Not Assessed	Hickory Creek arm	2,616	Bi. J	5 111	
2002	Overall Recreation Use	Not Assessed	Little Elm Creek arm	3,589	lity		
2002	Overall Recreation Use	Not Assessed	Lowermost portion of reservoir	5,736	Divi	F TT	
2002	Overall Recreation Use	Not Assessed	Middle portion of reservoir east of Lake Dallas	5,851	sio	Ö	
2002	Overall Recreation Use	Not Assessed	Remainder of reservoir	3,960	] 3		
2002	Overall Recreation Use	Not Assessed	Stewart Creek arm	1,528			
General Use			RECEIVED		l	l .	
2002	Water Temperature	r. II. C	MAR 13 2025	1 2 616	21		Γ
2002	Water Temperature Water Temperature	Fully Supporting	Hickory Creek arm  Little Elm Creek arm  Water Availability Division	2,616	31	0	
2002	Water Temperature Water Temperature	Fully Supporting	Construction to the construction of the constr		10	0	
2002	Water Temperature Water Temperature	Fully Supporting	Lowermost portion of reservoir	5,736	10	0	
2002	Water Temperature Water Temperature	Fully Supporting	Middle portion of reservoir east of Lake Dallas	5,851	10		
2002	water remperature	No Concern-Limited Data	Stewart Creek arm	1,528	5	0	
2002	рН	Fully Supporting	Hickory Creek arm	2,616	31	0	
2002	рН	Fully Supporting	Little Elm Creek arm	3,589	10	0	
2002	рН	Fully Supporting	Lowermost portion of reservoir	5,736	10	0	
2002	pН	Fully Supporting	Middle portion of reservoir east of Lake Dallas	5,851	10	0	
2002	pH	No Concern-Limited Data	Stewart Creek arm	1,528	5	0	

Reservo		Trinity River			23,280	Acres	
Assessment Year	Assessment Method	Status of Use Support or Concern	Location	Location size	# of samples	# of exceedances	Mean
General Use	(continued)						
2002	Chloride	Fully Supporting	Hickory Creek arm	2,616	40		22.5
2002	Chloride	Fully Supporting	Little Elm Creek arm	3,589	40		22.5
2002	Chloride	Fully Supporting	Lowermost portion of reservoir	5,736	40		22.5
2002	Chloride	Fully Supporting	Middle portion of reservoir east of Lake Dallas	5,851	40		22.5
2002	Chloride and	Fully Supporting	Remainder of reservoir	3,960	40		22.5
2002	Chloride Chloride Chloride  Sulfate	Fully Supporting	Stewart Creek arm	1,528	40		22.5
2002	Sulfate a T	Fully Supporting	Hickory Creek arm	2,616	15		33.9
2002	Sulfate 3 2	Fully Supporting	Little Elm Creek arm	3,589	15		33.9
2002	Sulfate ity Divi	Fully Supporting	Lowermost portion of reservoir	5,736	15		33.9
2002	Sulfate 2	Fully Supporting	Middle portion of reservoir east of Lake Dallas	5,851	15		33.9
2002	Sulfate 3	Fully Supporting	Remainder of reservoir	3,960	15		33.9
2002	Sulfate	Fully Supporting	Stewart Creek arm	1,528	15		33.9
2002	Total Dissolved Solids	Fully Supporting	Hickory Creek arm	2,616	66		218.65
2002	Total Dissolved Solids	Fully Supporting	Little Elm Creek arm	3,589	66		218.65
2002	Total Dissolved Solids	Fully Supporting	Lowermost portion of reservoir	5,736	66		218.65
2002	Total Dissolved Solids	Fully Supporting	Middle portion of reservoir east of Lake Dallas	5,851	66		218.65
2002	Total Dissolved Solids	Fully Supporting	Remainder of reservoir	3,960	66		218.65
2002	Total Dissolved Solids	Fully Supporting	Stewart Creek arm	1,528	66		218.65
2002	Overall General Use	Fully Supporting	Hickory Creek arm	2,616			
2002	Overall General Use	Fully Supporting	Little Elm Creek arm	3,589			
2002	Overall General Use	Fully Supporting	Lowermost portion of reservoir	5,736	DE	CEN	
2002	Overall General Use	Fully Supporting	Middle portion of reservoir east of Lake Dallas	5,851	ni	:CEN	
2002	Overall General Use	Fully Supporting	Remainder of reservoir	3,960		MAR 13 20	25
2002	Overall General Use	Fully Supporting	Stewart Creek arm	1,528	14	e Availability	

Segment ID:	0823 Water body	name: Lewisville	Lake			
Reservo	oir	Trinity River	Basin Total size:		23,280 Acres	
Assessment Year	Assessment Method	Status of Use Support or Concern	Location	Location size	# of # of samples exceedances	Mean
Sediment Con	taminants Concern (continue	d)				
2002	Overall Sediment Contaminant Concerns	Not Assessed	Lowermost portion of reservoir	5,736		
2002	Overall Sediment Contaminant Concerns	Not Assessed	Middle portion of reservoir east of Lake Dallas	5,851		
2002	Overall Sediment Contaminant Concerns	Not Assessed	Remainder of reservoir	3,960		
2002	Overall Sediment Contaminant Concerns	Not Assessed	Stewart Creek arm  Water Availability  Hickory Creek arm  Little Elm Creek arm	1,528		
Fish Tissue Co	ontaminants Concern		aliat R			
2002	Overall Fish Tissue Contaminant Concerns	Not Assessed	Hickory Creek arm	2,616		
2002	Overall Fish Tissue Contaminant Concerns	Not Assessed	Little Elm Creek arm	3,589		
2002	Overall Fish Tissue Contaminant Concerns	Not Assessed	Lowermost portion of reservoir	5,736		
2002	Overall Fish Tissue Contaminant Concerns	Not Assessed	Middle portion of reservoir east of Lake Dallas	5,851		
2002	Overall Fish Tissue Contaminant Concerns	Not Assessed	Remainder of reservoir	3,960	RECEIVI	ED
2002	Overall Fish Tissue Contaminant Concerns	Not Assessed	Stewart Creek arm	1,528	MAR 13 202	5 14
Public Water S	Supply Concern				Water Availability D	ivision
2002	Finished Water: Chloride	No Concern	Hickory Creek arm	2,616		
2002	Finished Water: Chloride	No Concern	Little Elm Creek arm	3,589		
2002	Finished Water: Chloride	No Concern	Lowermost portion of reservoir	5,736		
2002	Finished Water: Chloride	No Concern	Middle portion of reservoir east of Lake Dallas	5,851		
2002	Finished Water: Chloride	No Concern	Remainder of reservoir	3,960		
2002	Finished Water: Chloride	No Concern	Stewart Creek arm	1,528		

Reservo	ir	Trinity River	Basin Total size:		23,280	Acres	
Assessment Year	Assessment Method	Status of Use Support or Concern	Location	Location size	# of samples	# of exceedances	Mean
Public Water S	Supply Concern (continued)						
2002	Finished Water: Sulfate	No Concern	Hickory Creek arm	2,616			
2002	Finished Water: Sulfate	No Concern	Little Elm Creek arm	3,589			
2002	Finished Water: Sulfate	No Concern	Lowermost portion of reservoir	5,736			
2002	Finished Water: Sulfate	No Concern	Middle portion of reservoir east of Lake Dallas	5,851			
2002	Finished Water: Sulfate	No Concern	Remainder of reservoir	3,960			
2002	Finished Water: Sulfate	No Concern	Stewart Creek arm	1,528			
2002	Finished Water: Total Dissolved	No Concern	Hickory Creek arm	2,616			
2002	Solids Finished Water: Total Dissolved Solids	No Concern	Little Elm Creek arm  Water Availability Division	3,589			
2002	Finished Water: Total Dissolved Solids	No Concern	Lowermost portion of reservoir	5,736			
2002	Finished Water: Total Dissolved Solids	No Concern	Middle portion of reservoir east of Lake Dallas	5,851			
2002	Finished Water: Total Dissolved Solids	No Concern	Remainder of reservoir	3,960			
2002	Finished Water: Total Dissolved Solids	No Concern	Stewart Creek arm	1,528			
2002	Finished Water: MTBE	No Concern	Hickory Creek arm	2,616			
2002	Finished Water: MTBE	No Concern	Little Elm Creek arm	3,589	Wa	J	
2002	Finished Water: MTBE	No Concern	Lowermost portion of reservoir	5,736	ter .		
2002	Finished Water: MTBE	No Concern	Middle portion of reservoir east of Lake Dallas	5,851	Ava		
2002	Finished Water: MTBE	No Concern	Remainder of reservoir	3,960	ilab	3 1	
2002	Finished Water: MTBE	No Concern	Stewart Creek arm	1,528	Water Availability	3 20	
2002	Finished Water: Perchlorate	Not Assessed	Hickory Creek arm	2,616	Division	Si III	
2002	Finished Water: Perchlorate	Not Assessed	Little Elm Creek arm	3,589	3		
2002	Finished Water: Perchlorate	Not Assessed	Lowermost portion of reservoir	5,736			

Reservo	oir	Trinity River	Basin Total size:		23,280	Acres	
Assessment Year	Assessment Method	Status of Use Support or Concern	Location	Location size	# of samples	# of exceedances	Mea
blic Water	Supply Concern (continued)						
2002	Finished Water: Perchlorate	Not Assessed	Middle portion of reservoir east of Lake Dallas	5,851			
2002	Finished Water: Perchlorate	Not Assessed	Remainder of reservoir	3,960			
2002	Finished Water: Perchlorate	Not Assessed	Stewart Creek arm	1,528			
2002	Finished Water: Overall	No Concern	Hickory Creek arm	2,616			П
2002	Finished Water: Overall	No Concern	Little Elm Creek arm	3,589	DE	COLIN	/-
2002	Finished Water: Overall	No Concern	Lowermost portion of reservoir	5,736	MI	ECEIV	
2002	Finished Water: Overall	No Concern	Middle portion of reservoir east of Lake Dallas	5,851		MAR 13 20	25
2002	Finished Water: Overall	No Concern	Remainder of reservoir	3,960			1
2002	Finished Water: Overall	No Concern	Stewart Creek arm	1,528	vvate	r Availability	Divi
2002	Surface Water: Chloride	No Concern	Hickory Creek arm	2,616	40		22
2002	Surface Water: Chloride	No Concern	Little Elm Creek arm	3,589	40		22
2002	Surface Water: Chloride	No Concern	Lowermost portion of reservoir	5,736	40		2:
2002	Surface Water: Chloride	No Concern	Middle portion of reservoir east of Lake Dallas	5,851	40		2:
2002	Surface Water: Chloride	No Concern	Remainder of reservoir	3,960	40		2:
2002	Surface Water: Chloride	No Concern	Stewart Creek arm	1,528	40		2
2002	Surface Water: Sulfate	No Concern	Hickory Creek arm	2,616	15		3.
2002	Surface Water: Sulfate	No Concern	Little Elm Creek arm	3,589	15		3.
2002	Surface Water: Sulfate	No Concern	Lowermost portion of reservoir	5,736	15		3
2002	Surface Water: Sulfate	No Concern	Middle portion of reservoir east of Lake Dallas	5,851	15		3
2002	Surface Water: Sulfate	No Concern	Remainder of reservoir	3,960	15		3
2002	Surface Water: Sulfate	No Concern	Stewart Creek arm	1,528	15		3:
2002	Surface Water: Total Dissolved Solids	No Concern	Stewart Creek arm  Hickory Creek arm  Little Elm Creek arm  Value 13 20 25	2,616	66		213
2002	Surface Water: Total Dissolved Solids	No Concern	Little Elm Creek arm	3,589	66		21

Reservoir Total size: Trinity River Basin 23,280 Acres Assessment Status of Use # of # of Location Year Assessment Method Support or Concern Location samples exceedances | Mean size Public Water Supply Concern (continued) 2002 Surface Water: Total Dissolved No Concern 218.65 Lowermost portion of reservoir 5,736 66 Solids 2002 Surface Water: Total Dissolved No Concern Middle portion of reservoir east of Lake Dallas 5,851 66 218.65 Solids 2002 Surface Water: Total Dissolved No Concern Remainder of reservoir 218.65 3,960 66 Solids 2002 Surface Water: Total Dissolved No Concern Stewart Creek arm 1,528 66 218.65 Solids 2002 Surface Water: Overall No Concern Hickory Creek arm 2.616 2002 Surface Water: Overall No Concern Little Elm Creek arm 3.589 2002 Surface Water: Overall No Concern Lowermost portion of reservoir 5,736 2002 Surface Water: Overall No Concern Middle portion of reservoir east of Lake Dallas 5,851 Water 2002 Surface Water: Overall No Concern Remainder of reservoir 3,960 2002 Surface Water: Overall No Concern Stewart Creek arm 1,528 Hickory Creek arm

Little Elm Creek arm

Lowermost portion of reservoits 2002 Overall Public Water Supply No Concern 2,616 ســ دن Concerns Overall Public Water Supply 2002 No Concern 3,589 Concerns 2002 Overall Public Water Supply No Concern 5,736 Concerns 2002 Overall Public Water Supply Middle portion of reservoir east of Lake Dallas No Concern 5,851 Concerns 2002 Overall Public Water Supply No Concern Remainder of reservoir 3,960 Concerns 2002 Overall Public Water Supply No Concern Stewart Creek arm 1,528 Concerns



# 2002 WATER QUALITY INVENTORY SEGMENT ID: 0821

Accessed: 10/15/2024

Source: TWDB

RECEIVED
MAR 13 2025
Water Availability Division

Segment ID: 0821 Water body name: Lake Lavon

Reservo	pir	Trinity River	Basin Total size:		21,400	Acres			
Assessment Year	Assessment Method	Status of Use Support or Concern	Location	Location size	# of samples	# of exceedances	Mean		
Contact Recre	eation Use (continued)								
2002	Overall Recreation Use	Not Assessed	Lowermost portion of reservoir	5,577	R	The It			
2002	Overall Recreation Use	Not Assessed	Middle portion of Sister Grove Creek arm	5,019	lin.	MAD 40.00	Annie Logie		
2002	Overall Recreation Use	Not Assessed	Remainder of segment	7,211		MAR 13 20	(2)		
General Use									
2002	Water Temperature	Fully Supporting	East Fork arm	3,593	12	0			
2002	Water Temperature	Fully Supporting	Lowermost portion of reservoir	5,577	24	0			
2002	Water Temperature	Fully Supporting	Middle portion of Sister Grove Creek arm	5,019	12	0			
2002	pH	Fully Supporting	East Fork arm	3,593	12	0			
2002	pН	Fully Supporting	Lowermost portion of reservoir	5,577	24	0			
2002	рН	Fully Supporting	Middle portion of Sister Grove Creek arm	5,019	12	0			
2002	Chloride 2	Fully Supporting	East Fork arm	3,593	31		20.4		
2002	Chloride AAR	Fully Supporting	Lowermost portion of reservoir	5,577	31		20.4		
2002	Chloride a R	Fully Supporting	Middle portion of Sister Grove Creek arm	5,019	31		20.4		
2002	Chloride Chloride Chloride Chloride Chloride Chloride Chloride	Fully Supporting	Remainder of segment	7,211	31		20.4		
2002	Sulfate P. Si	Fully Supporting	East Fork arm	3,593	31		31.5		
2002	Sulfate Sulfate Sulfate Sulfate	Fully Supporting	Lowermost portion of reservoir	5,577	31		31.5		
2002	Sulfate \( \frac{\beta}{2} \)	Fully Supporting	Middle portion of Sister Grove Creek arm	5,019	31		31.5		
2002	Sulfate	Fully Supporting	Remainder of segment	7,211	31		31.5		
2002	Total Dissolved Solids	Not Assessed	East Fork arm	3,593	48		227.36		
2002	Total Dissolved Solids	Not Assessed	Lowermost portion of reservoir	5,577	48		227.36		
2002	Total Dissolved Solids	Not Assessed	Middle portion of Sister Grove Creek arm	5,019	48		227.36		
2002	Total Dissolved Solids	Not Assessed	Remainder of segment	7,211	48		227.36		
2002	Overall General Use	Fully Supporting	East Fork arm	3,593					

Reservo	oir	Trinity River	Basin Total size:		21,400	Acres	
Assessment Year	Assessment Method	Status of Use Support or Concern	Location	Location size	# of samples	# of exceedances	Mean
eneral Use	(continued)						
2002	Overall General Use	Fully Supporting	Lowermost portion of reservoir	5,577			
2002	Overall General Use	Fully Supporting	Middle portion of Sister Grove Creek arm	5,019			
2002	Overall General Use	Fully Supporting	Remainder of segment	7,211			
sh Consump	otion Use						
2002	Overall Fish Consumption Use	Not Assessed	East Fork arm	3,593	D	ECEN	
2002	Overall Fish Consumption Use	Not Assessed	Lowermost portion of reservoir	5,577	N N		/ Long L
2002	Overall Fish Consumption Use	Not Assessed	Middle portion of Sister Grove Creek arm	5,019		MAR 13	2025
2002	Overall Fish Consumption Use	Not Assessed	Remainder of segment	7,211	Wa	er Availabilit	/ Divis
ıblic Water S	Supply Use						
2002	Finished Water: Running Avg	Fully Supporting	East Fork arm	3,593			
2002	Finished Water: Running Avg	Fully Supporting	Lowermost portion of reservoir	5,577			,
2002	Finished Water: Running Avg	Fully Supporting	Middle portion of Sister Grove Creek arm	5,019			
2002	Surface Water: Long-term average Nitrate+Nitrite Nitrogen	Fully Supporting	East Fork arm	3,593	12		0.41
2002	Surface Water: Long-term average Nitrate+Nitrite Nitrogen	Fully Supporting	Lowermost portion of reservoir	5,577	12		0.27
2002	Surface Water: Long-term average Nitrate+Nitrite Nitrogen	Fully Supporting	Middle portion of Sister Grove Creek arm	5,019	12		0.2
2002	Overall Public Water Supply Use	Fully Supporting	East Fork arm	3,593			
2002	Overall Public Water Supply Use	Fully Supporting	Lowermost portion of reservoir	5,577	Wa	IJ	
2002	Overall Public Water Supply Use	Fully Supporting	Middle portion of Sister Grove Creek arm	5,019	Water AV	$\leq \Pi$	
2002	Overall Public Water Supply Use	Fully Supporting	Remainder of segment	7,211			
verall Use Su	apport			\$ 1735-11 \$ 1 \$ 1 \$ 1 \$ 1 \$ 1 \$ 1 \$ 1 \$ 1 \$ 1	allaoilit	3 1	
2002		Fully Supporting	East Fork arm	3,593	VUIVISION	2 <	

Segment ID: 0821 Water body name: Lake Lavon

Reservo	ir	Trinity River	Basin Total size:		21,400	Acres	
Assessment Year	Assessment Method	Status of Use Support or Concern	Location	Location size	# of samples	# of exceedances	Mean
Public Water S	Supply Concern (continued)						
2002	Finished Water: Sulfate	No Concern	East Fork arm	3,593			
2002	Finished Water: Sulfate	No Concern	Lowermost portion of reservoir	5,577			i
2002	Finished Water: Sulfate	No Concern	Middle portion of Sister Grove Creek arm	5,019			
2002	Finished Water: Sulfate	No Concern	Remainder of segment	7,211			
2002	Finished Water: Total Dissolved Solids	No Concern	East Fork arm	3,593	OFC	ENE	
2002	Finished Water: Total Dissolved Solids	No Concern	Lowermost portion of reservoir	5,577	I MA	R 13 2025 Availability Di	vision
2002	Finished Water: Total Dissolved Solids	No Concern	Middle portion of Sister Grove Creek arm	5,019	Mater	Availability	
2002	Finished Water: Total Dissolved Solids	No Concern	Remainder of segment	7,211			
2002	Finished Water: MTBE	No Concern	East Fork arm	3,593			
2002	Finished Water: MTBE	No Concern	Lowermost portion of reservoir	5,577			
2002	Finished Water: MTBE	No Concern	Middle portion of Sister Grove Creek arm	5,019			
2002	Finished Water: MTBE	No Concern	Remainder of segment	7,211		Wa I	7
2002	Finished Water: Perchlorate	Not Assessed	East Fork arm	3,593		MAR 13 Zu	
2002	Finished Water: Perchlorate	Not Assessed	Lowermost portion of reservoir	5,577		MAR MAR	)
2002	Finished Water: Perchlorate	Not Assessed	Middle portion of Sister Grove Creek arm	5,019		13 13	Sales
2002	Finished Water: Perchlorate	Not Assessed	Remainder of segment	7,211	a	many Comme	1
2002	Finished Water: Overall	No Concern	East Fork arm	3,593		) Division	
2002	Finished Water: Overall	No Concern	Lowermost portion of reservoir	5,577			
2002	Finished Water: Overall	No Concern	Middle portion of Sister Grove Creek arm	5,019			
2002	Finished Water: Overall	No Concern	Remainder of segment	7,211			
2002	Surface Water: Chloride	No Concern	East Fork arm	3,593	31		20.4

Segment ID: 0821

Water body name: Lake Lavon

ssessment Year	Assessment Method	Status of Use Support or Concern	Location	Location size	# of samples	# of exceedances	Mean
olic Water S	Supply Concern (continued)						
2002	Surface Water: Chloride	No Concern	Lowermost portion of reservoir	5,577	31		20.4
2002	Surface Water: Chloride	No Concern	Middle portion of Sister Grove Creek arm	5,019	31		20.4
2002	Surface Water: Chloride	No Concern	Remainder of segment	7,211	31		20.4
2002	Surface Water: Sulfate	No Concern	East Fork arm	3,593	31		31.5
2002	Surface Water: Sulfate	No Concern	Lowermost portion of reservoir	5,577	31		31.5
2002	Surface Water: Sulfate	No Concern	Middle portion of Sister Grove Creek arm	5,019	31		31.5
2002	Surface Water: Sulfate	No Concern	Remainder of segment	7,211	31		31.5
2002	Surface Water: Total Dissolved Solids	Not Assessed	East Fork arm	3,593	48		227.36
2002	Surface Water: Total Dissolved Solids	Not Assessed	Lowermost portion of reservoir	5,577	48		227.36
2002	Surface Water: Total Dissolved Solids	Not Assessed	Middle portion of Sister Grove Creek arm	5,019	48		227.36
2002	Surface Water: Total Dissolved Solids	Not Assessed	Remainder of segment	7,211	48		227.36
2002	Surface Water: Overall	No Concern	East Fork arm	3,593			
2002	Surface Water: Overall	No Concern	Lowermost portion of reservoir	5,577			
2002	Surface Water: Overall	No Concern	Middle portion of Sister Grove Creek arm	5,019			
2002	Surface Water: Overall	No Concern	Remainder of segment	7,211			
2002	Overall Public Water Supply Concerns	No Concern	East Fork arm	3,593			
2002	Overall Public Water Supply Concerns	No Concern	Lowermost portion of reservoir	5,577		REC	
2002	Overall Public Water Supply Concerns	No Concern	Lowermost portion of reservoir  Middle portion of Sister Grove Creek armaliability  Remainder of segment  WAR 13 2023	. [77]		) MAR	13 2
2002	Overall Public Water Supply Concerns	No Concern	Remainder of segment Billity 2	7,211	H	Water Avai	lability

Segment ID: 0	821	Water body name:	Lake Lavon
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Reservo	oir	Trinity River	Basin Total size:		21,400	Acres	
Assessment Year	Assessment Method	Status of Use Support or Concern	Location	Location size	# of samples	# of exceedances	Mean
arrative Crit	teria Concern						
2002	Overall Narrative Criteria Concerns	No Concern	East Fork arm	3,593			
2002	Overall Narrative Criteria Concerns	No Concern	Lowermost portion of reservoir	5,577			
2002	Overall Narrative Criteria Concerns	No Concern	Middle portion of Sister Grove Creek arm	5,019			
2002	Overall Narrative Criteria Concerns	No Concern	Remainder of segment	7,211			
verall Secon	dary Concern	-	I_,				
2002		Concern	East Fork arm	3,593			
2002		Concern	Lowermost portion of reservoir	5,577			
2002		No Concern	Middle portion of Sister Grove Creek arm	5,019			
2002		No Concern	Remainder of segment	7,211			





## TEXAS WATER DEVELOPMENT BOARD

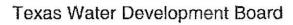
## UPDATED EVALUATION OF WATER RESOURCES IN PART OF NORTH-CENTRAL TEXAS

**SEPTEMBER 1999** 

Accessed: 10/15/2024

Source: TWDB

MAR 13 2025
Water Availability Division





Open-File Report 99-02

## Updated Evaluation of Water Resources in Part of North-Central Texas

Ву

Lon Langley



Well ID	County	Formation	Measurement Period	Average Yearly Difference	Total Water- Level Difference
				(ft)	(ft)
19-20-801	Montague	Antlers	. 1970-1989	+2.20	+41.87
	•		1989-1997	-0.26	-2.09
19-51-901	Wise	Twin Mtns	1970-1989	-0.02	-0.41
			1989-1997	+0.52	+4.14
32-46-907	Johnson	Trinity	1972-1989	-22.41	-381.00
			1989-1997	-12.50	-100.00
19-15-701	Cooke	Antlers	1970-1989	-1.40	-26.65
			1989-1997	-1.52	-12.17
19-24-702	Cooke	Antlers	1960-1989	-7.00	-181.90
			1989-1997	-4.12	-32.99
33-19-101	Dallas	Twin Mtns	1970-1989	-6.26	-118.81
			1989-1998	+8.33	+74.98
32-16-101	Tarrant	Twin Mtns	1970-1989	-10.68	-203.00
			1989-1997	-29.36	-234.85

Table 1. Water-level differences within the Antlers and Twin Mountains Formations, Trinity aguifer (based on data from TWDB, 1998a).

Water levels in individual wells in the Paluxy Formation show a variety of historical water-level changes (Figure 9). Two wells show little change over the past 30 years (19-60-601, 32-02-101) while one shows an overall decline of about 220 ft (18-49-101). A well in Tarrant County (32-16-201) shows large historical variations including a 220 foot rise between 1972 and 1976 and 25 to 100 ft variations since 1980. Since 1989, water levels in selected wells have declined as much as 55 feet and rebounded less than 3 feet (Table 2). Rates of water-level changes between 1989-1997 range from +0.36 to -13.75 feet per year (Table 2).

-			Measurement	Average Yearly	Total Water- Level
Well ID	County	Formation	Period	Difference	<u>Difference</u>
•				(ft)	(ft)
19-60-601	Wise	Paluxy	1970-1989	-2.63	-50.03
			1989-1996	+0.36	+2.52
32-02-101 .	Parker	Paluxy	1971-1989	+0.11	+2.03
			1989-1997	-2.47	-19.75
18-49-101	Denton	Paluxy	1970-1989	-9.99	-189.99
			1989-1996	-4.31	-30.16
32-16-201	Tarrant	Paluxy	1971-1989	+8.33	+150.00
			1989-1993	-13.75	-55.00

Table 2. Water-level differences within the Paluxy Formation, Trinity aquifer (based on data from TWDB, 1998a).



County	Aquifer	Annual Effective Recharge	Annual Recoverable Storage	Estima	ited Ave	rage An			ter Avail	ability
County	Aquilei	riceriange	O.O.ngc	1005	1000		cre-feet		0000	0000
01	т			1985	1990	1995	2000	2010	2020	2030
Cooke	Trinity	3,753	776	4,529	4,529	4,529	4,529	4,529	4 500	0 750
County	Woodbine	440	<u>0</u>	440	540 Table 2000	440	4,529	C-24 COLD C-CLOVACA	4,529	3,753
	Total	4,193	776	4,969	440 4,969	4,969	4,969	<u>440</u> 4,969	440	440
	1 Utai	4,100	710	4,303	4,303	4,505	4,505	4,503	4,969	4,193
Denton						······································		<del></del>		
County	Trinity	5,123	991	6,144	6,144	6.144	6,144	6,144	6,144	5,123
	Woodbine	1,010	<u>0</u>	1,010	1,010	1,010	1,010	1,010	1,010	1,010
	Total	6,133	991	7,154	7,154	7,154	7,154	7,154	7,154	6,133
Grayson									····	
County	Trinity	3,088	346	3,434	3,434	3,434	3,434	3,434	3,434	3,088
	Woodbine	5,710	<u>0</u>	5,710	5,710	5.710	5,710	5,710	5,710	5.710
	Total	8,798	346	9,144	9,144	9,144	9,144	9,144	9,144	8,798
Johnson										
County										4
	Trinity ]	2,504	365	2,869	2,869	2,869	2,869	2,869	2,869	2,504
	Woodbine	<u>866</u>	<u>0</u>	866	866	866	866	866	866	<u>866</u>
	Total	3,370	365	3,735	3,735	3,735	3,735	3,735	3,735	3,370
Tarrant			<del> </del>	~ · · · · · · · · · · · · · · · · · · ·		······································				
County	Trinity	4,996	0	4,996	4,996	4,996	4,996	4,996	4,996	4,996
	Woodbine	<u>766</u>	<u>o</u>	<u>766</u>	<u>766</u>	<u>766</u>	<u>766</u>	<u>766</u>	<u> 766</u>	766
	Total	5,762	0	5,762	5,762	5,762	5,762	5,762	5,762	5,762
								*******		
Parker	"Tulusia.	0.040	CD4	0.004	0.004	0.004	0.004	n 004	0.004	0.010
County	Trinity	3,210	681	3,891	3,891	3,891	3,891	3,891	3,891	3,210
-	Woodbine	2 210	<u>0</u>	<u>0</u>	0	0	0	0	0	2 2 2
	Total	3,210	681	3,891	3,891	168,6	3,891	3,891	3,891	3,210
Wise		··							1,00	
County	Trinity	4,163	805	4,968	4,968	4,968	4,968	4,968	4,968	4,163
2	Woodbine	<u>0</u>	<u>0</u>	Õ	<u>o</u>	<u>0</u>	<u>o</u>	<u>0</u>	<u>0</u>	0
	Total ·	4,163	805	4,968	4,968	4,968	4,968	4,968	4,968	4,163
			TEL TILL OF THE	<u></u>						

Table 11. Estimated groundwater availability (TDWR, 1990).

### NUTRIENT LOADING TO LEWISVILLE LAKE

1984 - 1987

Accessed: 10/15/2024

Source: USGS

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## NUTRIENT LOADING TO LEWISVILLE LAKE, NORTH-CENTRAL TEXAS, 1984–87

By W. Scott Gain and Stanley Baldys III

U.S. GEOLOGICAL SURVEY
Water-Resources Investigations Report 95–4076



Prepared in cooperation with the CITY OF DALLAS



Table 1. Location, physiographic region, and drainage area of synoptic-survey sites in the Lewisville Lake drainage basin

lmi<sup>2</sup>, square miles; GP, Grand Prairie; ECT, East Cross Timbers; TBP, Texas Blackland Prairie]

Site number (pl. 1)	Location of site or streamflow- gaging station name (station number)	Physiographic region	Drainage area (mi <sup>2</sup> )
Hickory Creek	drainage area:		
HI	North Hickory Creek at US 380	GP	39.4
Н2	South Hickory Creek at US 380	GP	20.1
H3	Dry Fork Hickory Creek at US 380	GP	4.13
<sup>1</sup> H4	Hickory Creek at Denton, Tex. (08052780)	GP	129
<sup>1</sup> H5	Fincher Branch at unnumbered county road	ECT	5.62
Clear Creek dra	inage area:		
C1	Clear Creek at FM 455	GP	257
C2	Duck Creek at FM 455	GP	31.4
C3	Clear Creek near Sanger, Tex. (08051500)	GP	295
<sup>1</sup> C4	Clear Creek at FM 2164	GP	323
<sup>1</sup> C5	Milam Creek at FM 2164	GP	12.4
Elm Fork Trinit	y River drainage area:		
E1	Elm Fork Trinity River at FM 2071	GP	182
E2	Elm Fork Trinity River at FM 922	GP	265
E3	Spring Creek at unnumbered county road	GP	71.1
<sup>1</sup> E4	Elm Fork Trinity River near Sanger, Tex. (08050500)	GP	381
Isle du Bois Cre	ek drainage area:		
11	Jordan Creek at unnumbered county road	ECT	65.3
12	Isle du Bois Creek at unnumbered county road	ECT	205
<sup>1</sup> 13	Isle du Bois Creek near Pilot Point, Tex. (08051000)	ECT	266
Little Elm Creel	drainage area:		
L1	Little Elm Creek at FM 455	TBP	46.7
<sup>1</sup> L2	Little Elm Creek near Aubrey, Tex. (08052700)	ECT	75.5
<sup>1</sup> L3	Mustang Creek at FM 428	ECT	22.2
<sup>1</sup> L4	Pecan Creek near Aubrey, Tex. (08052730)	ECT	32.2
<sup>1</sup> L5	Running Branch at FM 2931	ECT	2.79
Other streams in	Lewisville Lake drainage basin:		
<sup>1</sup> O1	Cooper Creek at unnumbered county road	ECT	6.66
<sup>1</sup> O2	Alyne Branch at FM 424	ECT	7.02
<sup>1</sup> O3	Pecan Creek at FM 288	ECT	12.3
<sup>1</sup> O4	Button Branch at unnumbered county road	TBP	14.8
<sup>1</sup> O5	Panther Creek at FM 423	TBP	20.3
<sup>1</sup> O6	Cottonwood Branch at FM 423	TBP	9.45
<sup>1</sup> O7	Stewart Creek at unnumbered county road	TBP	8.73

Downstream-most sites.

analyses were collected using depth-integrating suspended-sediment samplers and standard U.S. Geological Survey methods such as equal-width increment or equal-depth increment (Guy and Norman, 1970; Rantz and others, 1982). Immediately after collection, all

nutrient samples were chilled and preserved with mercuric chloride. Analyses for determination of total nitrite plus nitrate nitrogen, total ammonia plus organic nitrogen, total nitrogen, total phosphorus, and total organic carbon concentrations were done by the U.S.

Table 2. Discharge and daily mean nutrient loads and yields during low-flow (March 1984) and high-flow (March 1985) synoptic surveys in the Lewisville Lake drainage basin

[ft<sup>3</sup>/s, cubic feet per second; lb/d, pounds per day; (lb/d)/mi<sup>2</sup>, pounds per day per square mile; <, less than]

		Instantaneous		D	ally mean tot	al nitrogen			Daily mean tot	al phosphoru	8	
Drainage area	Site		arge <sup>1</sup> <sup>3</sup> /s)		ad <sup>2</sup> /d)		id <sup>2</sup> )/mi <sup>2</sup> ]		ad <sup>2</sup> v/d)		leid <sup>2</sup> 'd)/mi <sup>2</sup> ]	
		Low	High flow	Low	High flow	Low	High flow	Low	High flow	Low	High flow	
Hickory Creek	H1	6.60	7.60	121	131	3.1	3.3	10.7	6.14	0.27	0.16	
	H2	8.10	3.90	349	84.1	17	4.2	10.0	2.73	.50	.14	
	<b>H3</b>	.300	1.10	4.04	12.5	.98	3.0	.323	.711	.08	.17	
	3H4	24.0	33.0	621	462	4.8	3.6	23.3	19.6	.18	.15	
	<sup>3</sup> H5	.100	.500	.323	1.62	.06	,29	.022	.108	<.01	.02	
Clear Creek	C1	47.0	180	127	1,160	.49	4.5	5.07	67.9	.02	.26	
	C2	4.20	14.0	36.2	136	1.2	4.3	.906	4.53	.03	.14	
	C3	63.0	296	204	2,390	.69	8.1	10.2	144	.03	.49	
	<sup>3</sup> C4	68.0	325	293	2,450	.91	7.5	25.7	175	.08	.54	
	<sup>3</sup> C5	2.20	1.70	19.0	9.16	1.5	.74	1.07	.367	.09	.03	
Elm Fork	EI	58.4	277	535	3,430	2.9	19	78.7	269	.43	1.5	
Trinity River	E2	66.0	360	747	3,690	2.8	14	99.6	310	.38	1.2	
	E3	5.70	24.0	64.5	466	.91	6.6	3.07	12.9	.04	.18	
	<sup>3</sup> E4	69.0	390	558	4,620	1.5	12	59.5	210	.16	.55	
Isle du Bois	11	6.10	22.0	92.9	130	1.4	2.0	2.30	15.4	.04	.24	
Creek	12	50.6	46.0	900	322	4.4	1.6	21.8	39.7	.11	.19	
	<sup>3</sup> I3	54.0	101	815	817	3.1	3.1	146	70.8	.55	.27	
Little Elm Creek	L1	9.40	84.9	289	1,650	6.2	35	22.8	151	.49	3.2	
	3L2	14.0	72.5	332	1,910	4.4	25	6.04	160	.08	2.1	\$
	$^3L3$	2.80	1.30	64.9	16.1	2.9	.73	.906	1.12	.04	.05	9
	$^3L4$	2.70	6.20	36.4	40.1	1.1	1.2	1.02	5.35	.03	.17	À
	3LS	1.20	1.30	7.76	7.71	2.8	2.8	.323	.701	.12	.25	Vail
Cooper Creek	<sup>3</sup> O1	,700	1.00	4.15	8.08	.62	1.2	.189	.054	.03	.01	abili:
Alyne Branch	<sup>3</sup> O2	.100	.400	.808	1.72	.12	.25	.194	.216	.03	.03	Ų D
Pecan Creek	<sup>3</sup> O3	1.70	1.90	7.33	11.3	.60	.92	1.74	1.02	.14	.08	Water Availability Division
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Footnotes at end of table.



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Table 3. Mean water-quality data for stormflow and periodic sampling at streamflow-gaging stations in the Lewisville Lake drainage basin, 1986–87 water years

[ft<sup>3</sup>/s, cubic feet per second; µS/cm, microsiemens per centimeter at 25 degrees Celsius; mg/L, milligrams per liter; N, nitrogen; P, phosphorus; CaCO<sub>3</sub>, calcium carbonate; Ca, calcium]

	Stormflow	and periodic	sampling	Periodic sampling
Discharge or water-quality property or constituent	Clear Creek near Sanger (08051500)	Little Elm Creek near Aubrey (08052700)	Hickory Creek at Denton (08052780)	Eim Fork Trinity River near Pliot Point (08051130)
Instantaneous discharge (ft <sup>3</sup> /s)	1,239	619	2,123	546
Specific conductance (µS/cm)	496	411	376	451
pH (standard units)	7.9	7.8	-	7.8
Nitrogen, nitrite plus nitrate, total (mg/L as N)	.78	2.0	1.1	.95
Nitrogen, ammonia plus organic, total (mg/L as N)	1.6	1.8	2.3	1.3
Phosphorus, total (mg/L as P)	.29	.37	.19	.20
Hardness, total (mg/L as CaCO <sub>3</sub> )	210	140	160	160
Alkalinity (mg/L as CaCO <sub>3</sub> )	169	120	139	142
Calcium, dissolved (mg/L as Ca)	69	51	59	55
Magnesium, dissolved (mg/L)	8.3	4.4	4.1	5.3
Sodium, dissolved (mg/L)	34	32	20	32
Potassium, dissolved (mg/L)	3	5	3	4
Sulfate, dissolved (mg/L)	36	81	30	37
Chloride, dissolved (mg/L)	54	12	14	34
Fluoride, dissolved (mg/L)	.2	.4	.2	.2
Silica, dissolved (mg/L)	10	7	11	8.7

relation of major ions in the water from each stream. Linear patterns in the arrangement of data in trilinear diagrams indicate mixing of dissimilar waters (Hem, 1985). The linear arrangement of the data for Clear Creek near Sanger (fig. 4) indicates the mixing of two dissimilar waters—one dominated by calcium carbonate and the other by sodium and chloride ions. This is attributed to Clear Creek draining from the West Cross Timbers and Grand Prairie physiographic regions. Dryer soils of the West Cross Timbers region could contain more sodium chloride than the prairie soils. As waters from the two regions mix, the major-ion ratios vary relative to the proportion of water from each of the regions.

A linear pattern, to a lesser degree than that of the Clear Creek near Sanger data, also can be seen in the data for Little Elm Creek near Aubrey (fig. 4), indicating a mixture of calcium carbonate- and sulfatedominated water. Sulfate concentrations in Little Elm Creek generally are largest in low flows.

The data for Hickory Creek at Denton and Elm Fork Trinity River near Pilot Point indicate a calcium carbonate-dominated water (fig. 4). One sewage-treatment plant discharges above the sampling point on Hickory Creek (pl. 1).

#### **Daily Mean Nutrient Loading**

Daily mean nutrient loads for total nitrite plus nitrate nitrogen, total ammonia plus organic nitrogen, and total phosphorus were computed for each of four streamflow-gaging stations (on Clear Creek, Little Elm Creek, Hickory Creek, and Elm Fork Trinity River) (pl. 1), and for ungaged streams (collectively), in the

Table 4. Daily mean discharge and nutrient concentrations, loads, and yields for streamflow-gaging stations and ungaged streams in the Lewisville Lake drainage basin, 1986-87 water years

[mi<sup>2</sup>, square miles; ft<sup>3</sup>/s, cubic feet per second; (ft<sup>3</sup>/s)/mi<sup>2</sup>, cubic feet per second per square mile; mg/L, milligrams per liter; lb/d, pounds per day; (lb/d)/mi<sup>2</sup>, pounds per day per square mile; -, not applicable; <, less than]

Steamentlow	Streamflow- Drain-			mean harge	Daily mean total nitrite plus nitrate nitrogen			Dally mean total ammonia plus organic nitrogen			Daily mean total phosphorus		
gaging station (number)	gaging station age	Water year	(ft <sup>3</sup> /s)	[(ft <sup>3</sup> /s)/ ml <sup>2</sup> ]	Con- centra- tion (mg/L)	Load (lb/d)	Yield [(lb/d)/ ml <sup>2</sup> ]	Con- centra tion (mg/L)	Load (lb/d)	Yleid [(ib/d)/ mi <sup>2</sup> ]	Con- centra- tion (mg/L)	Load (lb/d)	Yield [(ib/d)/ ml <sup>2</sup> ]
Clear Creek near Sanger, Tex. (08051500)	295	1986 1987	146 158	0.49 .54	0.65 .62	511 526	1.7 1.8	1.5 1.4	1,150 1,180	3.9 4.0	0.22 .21	174 177	0.59 .60
Little Elm Creek near Aubrey, Tex. (08052700)	75.5	1986 1987	49.6 24.8	.66 .33	1.9 1.6	503 216	6.7 2.9	1.8 1.7	469 223	6.2 3.0	.32 .32	85.5 42.3	1.1 .56
Hickory Creek at Denton, Tex. (08052780)	129	1986 1987	107 81.7	.83 .63	1.1 1.1	646 482	5.0 3.7	2.1 2.0	1,210 883	9.4 6.8	.20 .19	117 85.2	.91 .66
Elm Fork Trinity River near Pilot Point, Tex. (08051130)	692	1986 1987	437 365	.63 .53	1.0 1.0	2,450 2,030	3.5 2.9	1.3 1.3	2,970 2,490	4.3 3.6	.26 .26	609 502	.88 .73
Ungaged streams in Lewisville Lake drainage basin	434	1986 1987	272 242	.63 .56	.97 .86	<sup>1</sup> 1,420 <sup>1</sup> 1,130	3.3 2.6	1.8 1.7	<sup>1</sup> 2,650 <sup>1</sup> 2,170	6.1 5.0	.22 .21	<sup>1</sup> 324 <sup>1</sup> 270	.75 .62
Lewisville Lake (precipitation) <sup>2</sup>	36.0	1986 1987			.18 .18	107 92.0	3.0 2.6	.14 .14	83.0 72.0	2.3 2.0	<.003 <.003	<1.80 <1.60	<.05 <.04
Total	1,660	1986 1987	1,010 870	: ww		<sup>1</sup> 5,640 <sup>1</sup> 4,480			<sup>1</sup> 8,530 <sup>1</sup> 7,020			<sup>1</sup> 1,310 <sup>1</sup> 1,080	**

Does not include loads from sewage-treatment plants.
 National Atmospheric Deposition Program, 1987a, b, 1988a, b.



Water Availability Division



# East Fork Trinity River – Lavon Lake Watershed Data Report

**SEPTEMBER 2022** 

Accessed: 10/15/2024

Source: Texas State University

MAR 13 2025
Water Availability Division

## EAST FORK TRINITY RIVER -LAVON LAKE WATERSHED DATA REPORT









The rising STAR of Texas



This report was prepared in cooperation with, and financed through, grants from the U.S. Environmental Protection Agency through the Texas Commission on Environmental Quality.

#### Texas Water Quality Standards

The Texas Surface Water Quality Standards establish explicit goals for the quality of streams, rivers, lakes, and bays throughout the state. The standards are developed to maintain the quality of surface waters in Texas to support public health and protect aquatic life, consistent with the sustainable economic development of the state. Water quality standards identify appropriate uses for the state's surface waters, including aquatic life, recreation, and sources of public water supply as drinking water. The criteria for evaluating support of those uses in the classified segments of Wilson Creek (Segment 0821C) and the East Fork Trinity River above Lake Lavon (Segment 0821D) included in this report are provided in Table 4. The total dissolved solids criteria are for maximum annual averages, the dissolved oxygen criteria are for minimum 24-hour dissolved oxygen means at any site within the segment, the minimum and maximum values for pH apply to any site within the segment, the *E. coli* indicator bacteria for freshwater is a geometric mean, and the temperature criteria is a maximum value at any site within the segment.

The Texas Surface Water Quality Standards also contain narrative criteria (verbal descriptions) that apply to all waters of the state and are used to evaluate support of applicable uses. Narrative criteria include general descriptions such as the existence of excessive aquatic plant growth, foaming of surface waters, taste- and odor-producing substances, sediment build-up, and toxic materials. Narrative criteria are evaluated by using screening levels, if they are available, and other information, including water quality studies, existence of fish kills or contaminant spills, photographic evidence, and local knowledge. Screening levels serve as a reference to indicate when water quality parameters may be approaching levels of concern.

Table 4. State water quality criteria in the East Fork Trinity River – Lavon Lake Watershed within the Upper Trinity River Basin in Collin County and Grayson County, Texas (Texas Commission on Environmental Quality, 2018).

Segment	Total Dissolved Solids (mg/L)	Dissolved Oxygen (mg/L)	pH Range (s.u.)	E. coli Bacteria (#/100 mL)	Temperature (°C)
0821C – Wilson Creek	400	Minimum 24-hour mean: 4.0 Grab minimum: 3.0	6.5-9.0	Primary Contact Recreation: 126 geometric mean, 399 single sample	33.9
0821D – East Fork Trinity River above Lake Lavon	400	Minimum 24-hour mean: 4.0 Grab minimum: 3.0	6.5-9.0	Primary Contact Recreation: 126 geometric mean, 399 single sample	33.9

Citizen scientists monitored the sites for standard core, *E. coli* bacteria, and advanced water quality monitoring parameters, including air and water temperature, conductivity, total dissolved solids, dissolved oxygen, pH, Secchi disc/tube transparency, total depth, *E. coli*, nitratenitrogen, and orthophosphate.

#### Air and Water Temperature

Average air temperature for all sites ranged from 24.9 to 18.4°C (Table 6). The lowest mean air temperature (18.4°C) was observed in an unnamed tributary to Wilson Creek (Site 15064). The highest mean air temperature (24.9°C) was observed in the East Fork Trinity River (Site 81254).

Average water temperature ranged from 21.5°C in the East Fork Trinity River (Site 81254) to 17.4°C at Jean's Creek (Site 81019), a tributary to Wilson Creek (Table 6). Water temperatures were below the water quality standard at all sites except site 81020 on Wilson Creek (35.1°C) on July 31, 2022 (Figure 5), during one of the hottest years on record.

#### Specific Conductance and Total Dissolved Solids

Specific conductance values were derived from total dissolved solids. Average total dissolved solid values ranged from 476 mg/L in an unnamed tributary flowing to Wilson Creek (Site 15064) to 181 mg/L in the East Fork Trinity River (Site 81254) (Table 6). The total dissolved solid water quality standard for the East Fork Trinity River – Lavon Lake Watershed is 400 mg/L. Average total dissolved solids were below the standard at most sites except two, 15064 and 81019, both on Wilson Creek (Table 6). However, all sites flowing to Wilson Creek and White Rock Creek exhibited values greater than the water quality standard (>400 mg/L) during the period of record for this study (Figure 6), therefore the data were distributed above that threshold.

Table 5. Texas Stream Team monitoring sites in the East Fork Trinity River – Lavon Lake Watershed within the Upper Trinity River Basin in Collin and Grayson Counties, Texas.

Site ID	Description	Number of Samples (n)	Period of Record
East For	k Trinity River		
81254	Chambersville Lake @ CR 971	16	7/2/2016 - 2/5/2019
81253	Pond @ Erwin Park	35	8/16/2016 - 6/30/2022
Wilson (	Creek		
81020	Wilson Creek @ Lake Forest Dr.	93	3/26/2014 - 7/31/2022
81019	Jean's Creek @ University Dr.	91	3/26/2014 - 7/31/2022
15611	Wilson Creek East of US 75 SW of McKinney	189	4/16/1996 - 7/19/2022
15064	Unnamed Tributary @ Wilson Creek	170	11/27/2006 - 7/19/2022
15610	Wilson Creek @ Collin CR 323 East of	109	6/28/1995 - 7/17/2022
	Fairview		
White R	ock Creek		
81435	White Rock Creek at Snider Lane outside	27	5/21/2018 - 9/30/2020
	Lucas		at at a second
******	TOTAL	730	· ·



## HYDROLOGIC DATA FOR LITTLE ELM CREEK, TRINITY RIVER BASIN TEXAS, 1976

Accessed: 10/15/2024

Source: USGS

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## Hydrologic Data for Little Elm Creek, Trinity River Basin Texas, 1976

By R. M. Slade, Jr., T. H. Hays, and C. T. Schoultz

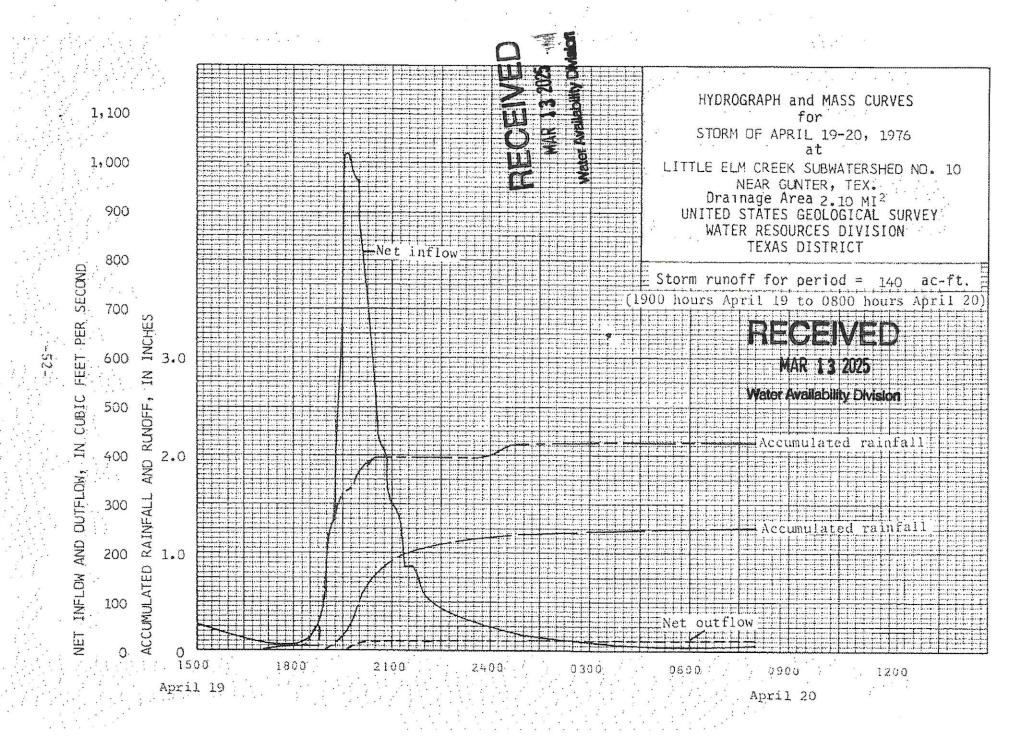
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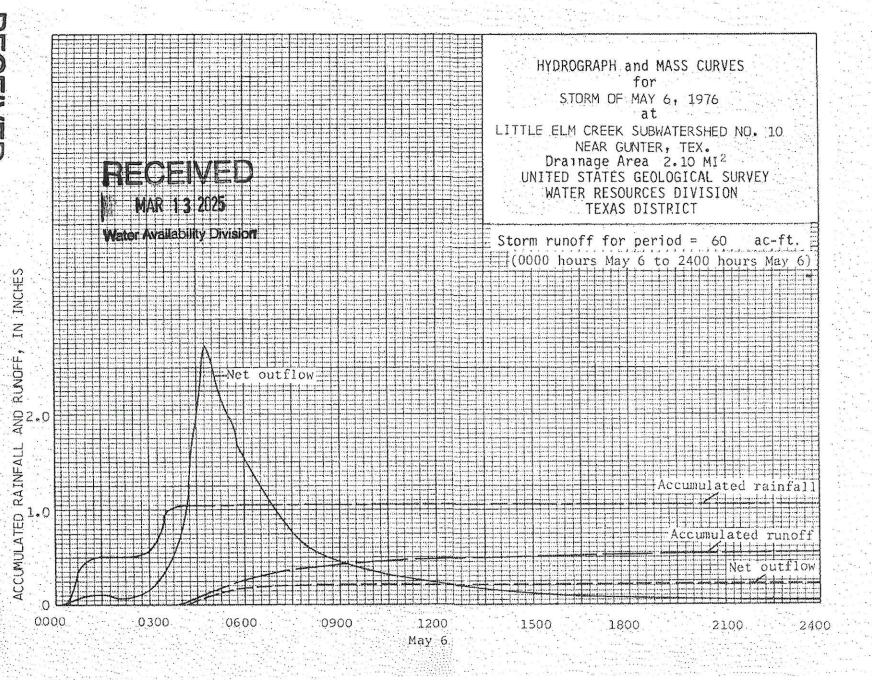


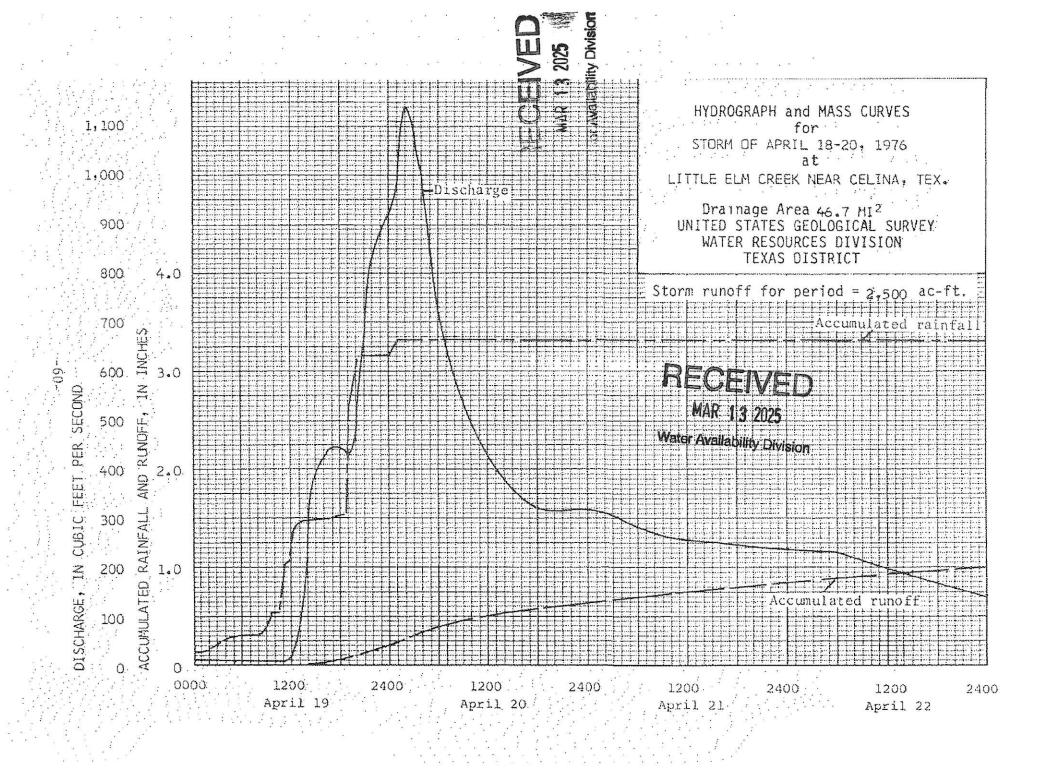
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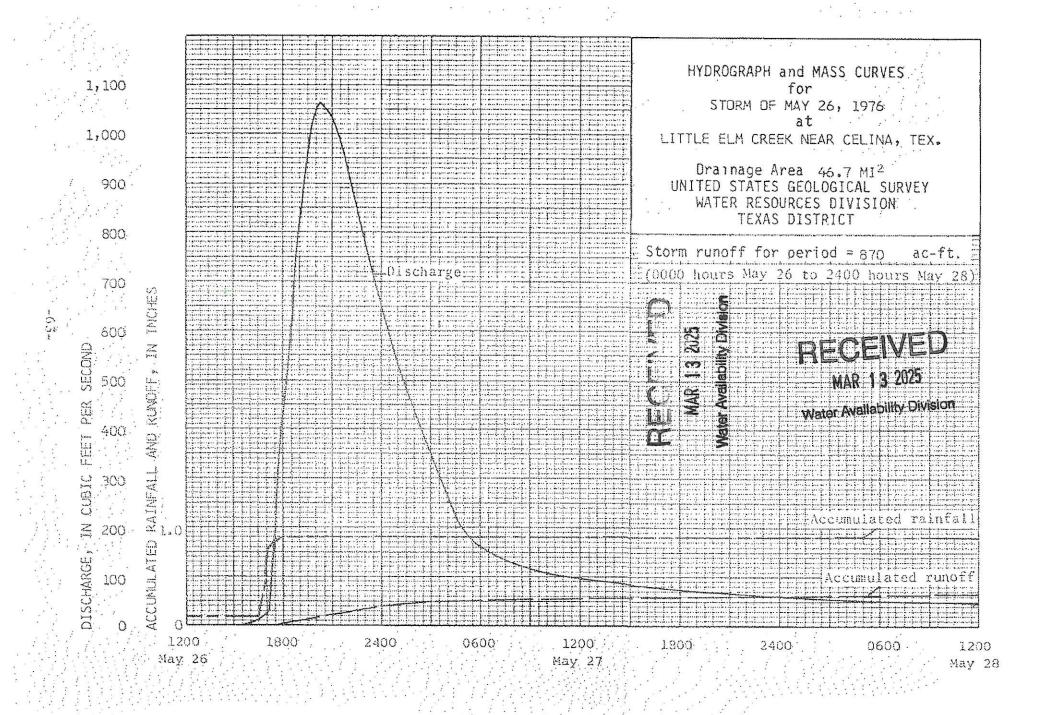
Prepared in cooperation with the city of Dallas and the Texas, Department of Water Resources

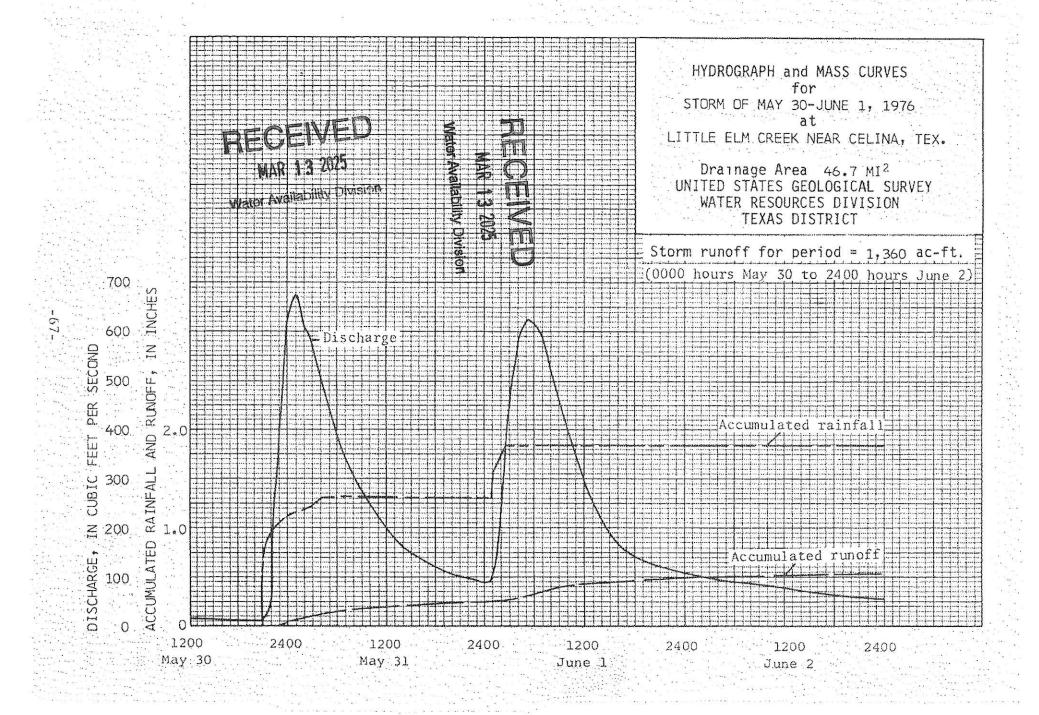


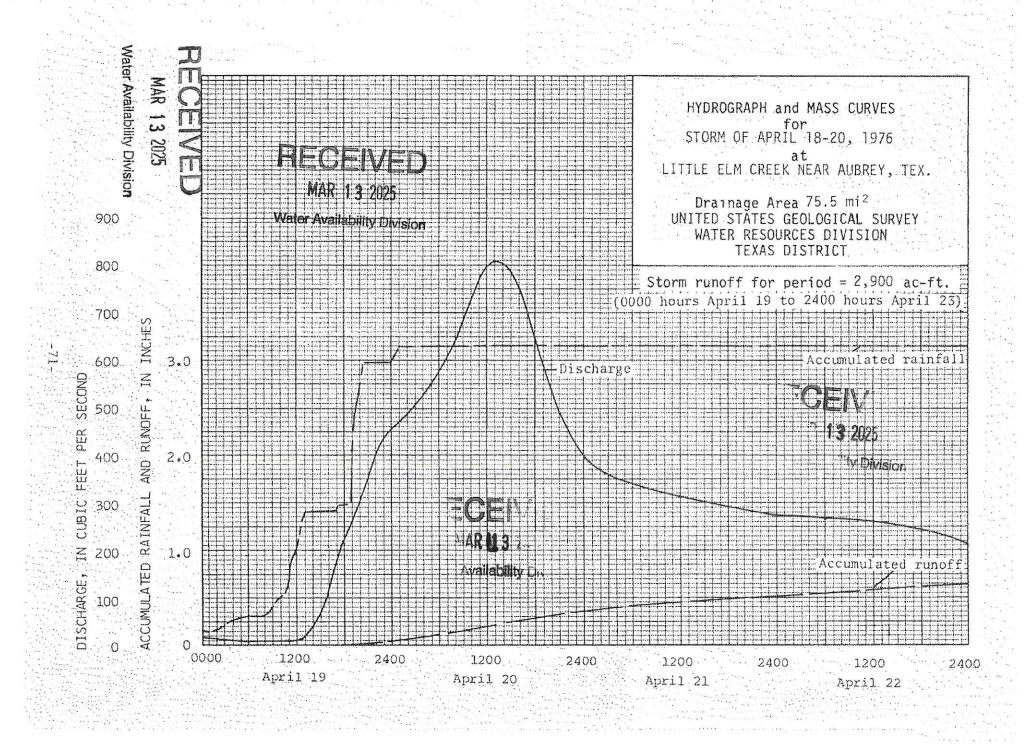
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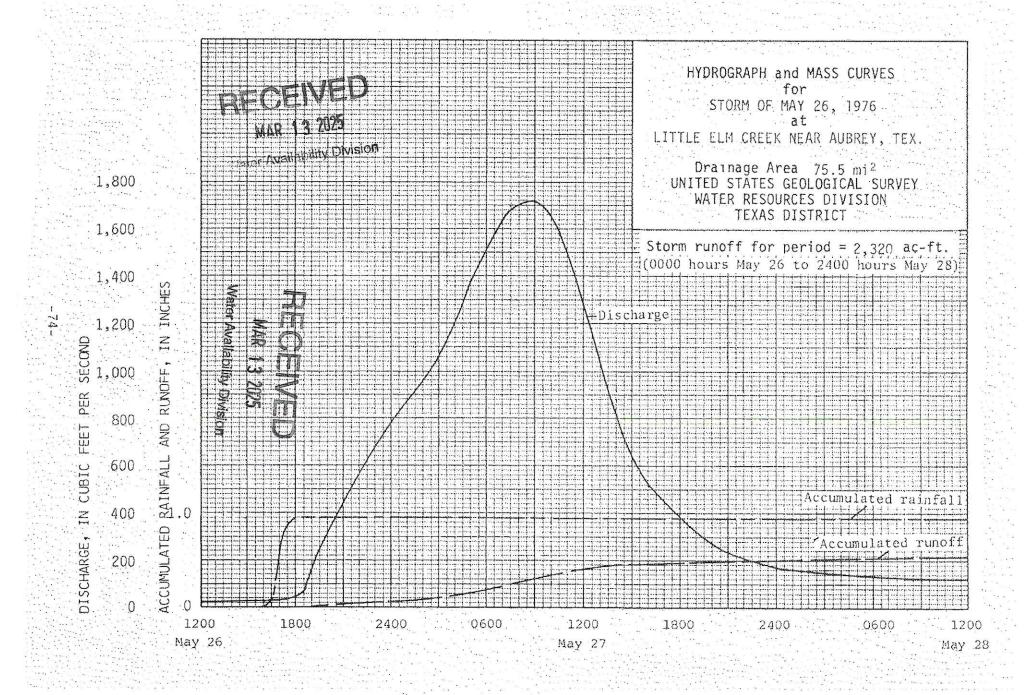


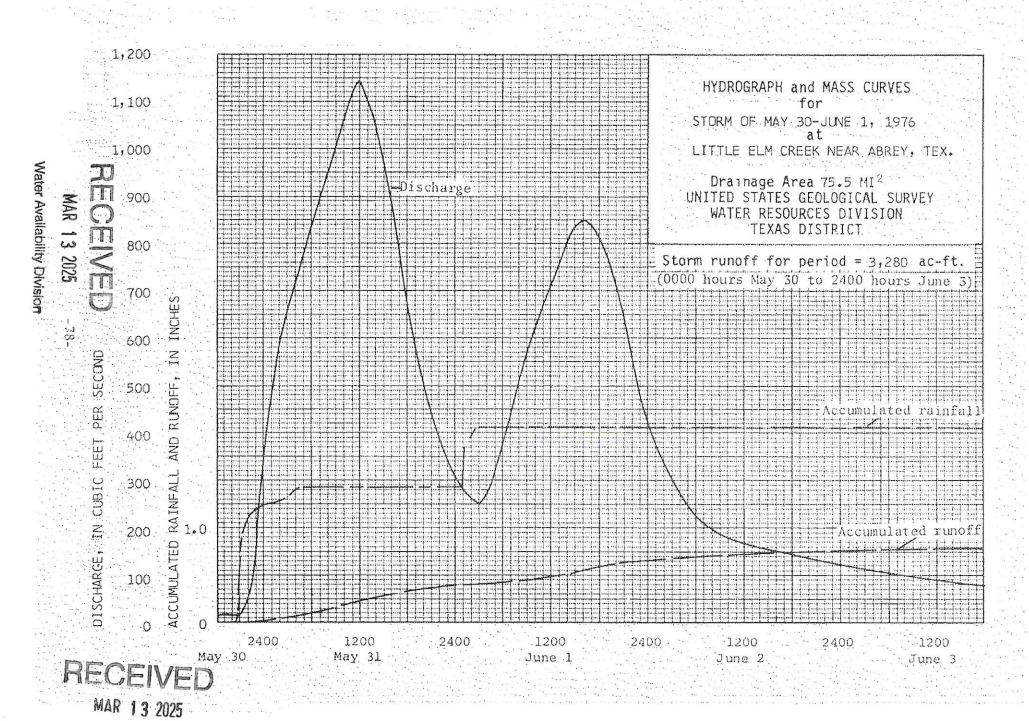












#### **APPENDIX D**

# CHAPTER 307 ANALYSIS CALCULATIONS AND WATER IMPACT CALCULATIONS

#### WATER QUALITY IMPACT ESTIMATES SUMMARY

#### #1 - UNNAMED TO LITTLE ELM CREEK TO LAKE LEWISVILLE (WEST OF PROPERTY)

Impact on Little Elm Creek

Water Quality Measure	Twin Mountains / Lower Trinity	Secondary Concentration Standard	Proposed Increase	Resultant Concentration
	(mg/L)	(mg/L)	(%)	(mg/L)
Sulfate	114	300	0.00010%	300
Chloride	24	300	0.00002%	300
TDS	568	1000	0.0002%	1000

Impact on Lewisville Lake

Water Quality Measure	Twin Mountains / Lower Trinity	Secondary Concentration Standard	Proposed Increase	Resultant Concentration
	(mg/L)	(mg/L)	(%)	(mg/L)
Sulfate	114	300	0.000005%	300
Chloride	24	300	0.0000010%	300
TDS	568	1000	0.000007%	1000

#### #1 - UNNAMED TO LONG BRANCH CREEK TO LAKE LAVON (EAST OF PROPERTY)

Impact on Long Branch Creek

Water Quality Measure	Twin Mountains / Lower Trinity	Secondary Concentration Standard	Proposed Increase	Resultant Concentration
	(mg/L)	(mg/L)	(%)	(mg/L)
Sulfate	114	300	0.00008%	300
Chloride	24	300	0.00002%	300
TDS	568	1000	0.00011%	1000

Impact on Lewisville Lake

Water Quality Measure	Twin Mountains / Lower Trinity	Secondary Concentration Standard	Proposed Increase	Resultant Concentration
	(mg/L)	(mg/L)	(%)	(mg/L)
Sulfate	114	300	0.00003%	300
Chloride	24	300	0.00001%	300
TDS	568	1000	0.00005%	1000

WATER QUALITY IMPACTS ON LITTLE ELM CREEK					
Little Elm Creek Watershed Area:	75.5	square miles	TWDB - Report No. 14 - Hydrologic Studies of Watersheds		
Average Annual Rainfall:	40.96	inches	TWDB Water Data for Texas		
Average Annual Rainfall Volume:	164,932	acre-feet	TWDB Water Data for Texas		
Requested Annual Groundwater Volume from Twin Mountains / Lower Trinity:	0.440	cfs	From Irrigation Demand Calculations		

Conversions					
1 ft. =	12	in.			
1 sq. mi. =	640	ac.			
1 ac-ft =	1,233,482	L			
1 mg =	0.000001	kg			

0.0003%

Water Quality Measure	Twin Mountains / Lower Trinity	Concentration Standard	Annual Mass from Proposed Twin Mountains / Lower Trinity Aquifer Well	Annual Mass from Little Elm Creek Watershed	Total Mass	Proposed Increase	Resultant Concentration (mg/L)
	(mg/L)	(mg/L)	(kg)	(kg)	(kg)	(%)	
Sulfate	114	300	62	61,032,295	61,032,357	0.00010%	300
Chloride	24	300	13	61,032,295	61,032,308	0.00002%	300
TDS	568	1000	308	203,440,982	203,441,290	0.0002%	1000

WATER QUALITY IMPACTS ON LEWISVILLE LAKE					
Lewisville Lake Watershed Area:	1,660	square miles	Lewisville Lake TWDB Page		
Average Annual Rainfall:	40.96	inches	TWDB Water Data for Texas		
Average Annual Rainfall Volume:	3,626,325	acre-feet	TWDB Water Data for Texas		
Requested Annual Groundwater Volume from Twin Mountains / Lower Trinity:	0.440	cfs	From Irrigation Demand Calculations		

	Conversions	
1 ft. =	12	ln.
1 sq. mi. =	640	ac.
1 ac-ft =	1,233,482	L
1 mg =	0.000001	kg

0.0000%

Water Quality Measure	Twin Mountains / Lower Trinity (mg/L)	Secondary Concentration Standard (mg/L)	Annual Mass from Proposed Twin Mountains / Lower Trinity Aquifer Well (kg)	Annual Mass from Lewisville Lake Watershed (kg)	Total Mass	Proposed Increase (%)	Resultant Concentration (mg/L)
Sulfate	114	300	62	1,341,902,107	1,341,902,169		300
Chloride	24	300	13	1,341,902,107	1,341,902,120	0.0000010%	300
TDS	568	1000	308	4,473,007,025	4,473,007,333	0.000007%	1000

WATER QUALITY IMPACTS ON LONG BRANCH CREEK							
Long Branch Creek Watershed Area:	76.0	square miles	Lavon Lake Watershed Protection Plan - 2017				
Average Annual Rainfall:	40.96	inches	TWDB Water Data for Texas				
Average Annual Rainfall Volume:	166,025	acre-feet	TWDB Water Data for Texas				
Requested Annual Groundwater Volume from Twin Mountains / Lower Trinity:	0.334	cfs	From Irrigation Demand Calculations				

	Conversions	Secretaria de la compansión de la compan
1 ft. =	12	in.
1 sq. mi. =	640	ac.
1 ac-ft =	1,233,482	L
1 mg =	0.000001	kg

0.0002%

Water Quality Measure	Twin Mountains / Lower Trinity (mg/L)	Secondary Concentration Standard (mg/L)	Annual Mass from Proposed Twin Mountains / Lower Trinity Aquifer Well (kg)	Annual Mass from Wilson Creek Watershed (kg)	Total Mass	Proposed Increase (%)	Resultant Concentration (mg/L)
Sulfate	114	300	47	61,436,482	61,436,529	0.0000765%	300
Chloride	24	300	10	61,436,482	61,436,492	0.00002%	300
TDS	568	1000	234	204,788,273	204,788,507	0.00011%	1000

WATER QUALITY IMPACTS ON LAVON LAKE						
Lavon Lake Watershed Area:	769	square miles	Lavon Lake Watershed Protection Plan - 2017			
Average Annual Rainfall:	40.96	inches	TWDB Water Data for Texas			
Average Annual Rainfall Volume:	1,679,906	acre-feet	TWDB Water Data for Texas			
Requested Annual Groundwater Volume from Twin Mountains / Lower Trinity:	0.334	cfs	From Irrigation Demand Calculations			

	Conversions	
1 ft. =	12	in.
1 sq. mi. =	640	ac.
1 ac-ft =	1,233,482	L
1 mg =	0.000001	kg

0.0000%

Water Quality Measure	Twin Mountains / Lower Trinity (mg/L)	Secondary Concentration Standard (mg/L)	Annual Mass from Proposed Twin Mountains / Lower Trinity Aquifer Well (kg)	Annual Mass from Lavon Lake Watershed (kg)	Total Mass	Proposed Increase (%)	Resultant Concentration (mg/L)
Sulfate	114	300	47	621,640,193	621,640,240	0.000008%	300
Chloride	24	300	10	621,640,193	621,640,203	0.000002%	300
TDS	568	1000	234	2,072,133,977	2,072,134,211	0.000011%	1000

# RAMBLE 307 ANALYSIS CALCULATIONS

## TAC 30 - CHAPTER 307 - SCREENING AND PERMIT LIMITATION ESTIMATES SUMMARY

### #1 - UNNAMED TO LITTLE ELM CREEK TO LAKE LEWISVILLE (WEST OF PROPERTY)

**TDS** 

Calculated Screening Value Stream =

2,500.00 mg/L

Estimated Effluent Concentration =

567.706 mg/L

.

Permit Needed =

No Permit Limitations Necessary

CHLORIDE

Calculated Screening Value Stream =

400.00 mg/L

Estimated Effluent Concentration =

24 mg/L

<- Twin Mountains Formation (deepest formation)

<- Twin Mountains Formation (deepest formation)

Permit Needed =

No Permit Limitations Necessary

SULFATE

Calculated Screening Value Stream =

300.00 mg/L

Estimated Effluent Concentration =

114 mg/L

<- Twin Mountains Formation (deepest formation)

Permit Needed =

No Permit Limitations Necessary

### #2 - UNNAMED TO LONG BRANCH CREEK TO LAKE LAVON (EAST OF PROPERTY)

TDS

Calculated Screening Value Stream =

2,500.00 mg/L

Estimated Effluent Concentration =

567.706 mg/L

<- Twin Mountains Formation (deepest formation)

Permit Needed =

No Permit Limitations Necessary

CHLORIDE

Calculated Screening Value Stream =

500.00 mg/L

Estimated Effluent Concentration =

24 mg/L

<- Twin Mountains Formation (deepest formation)

Permit Needed =

No Permit Limitations Necessary

SULFATE

Calculated Screening Value Stream =

500.00 mg/L

Estimated Effluent Concentration =

114 mg/L

<- Twin Mountains Formation (deepest formation)

Permit Needed =

No Permit Limitations Necessary

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# Unnamed Tributary to Little Elm Creek to Lewisville Lake

TDS

Stream Type: Intermittent Stream

Stream Name:

Unnamed to Little Elm Creek

Distance to Lake Lewisville:

14 miles

#### Step 1: Determine Screening Value for Intermittent Stream

Parameter	Existing Little Elm Creek (mg/L) TDS Cc	Existing Adjacent Groundwater Well Concentrations (Twin Mountains Formation Southmg/L).		Existing Adjacent Groundwater Well Concentrations (Antlers Sand Formation- mg/L)	Existing Adjacent Groundwater Well Concentrations (Paluxy Sand Formation- mg/L)	Estimated Screening Limit with Twin Mountain Quality Water - South (mg/L)	Estimated Screening Limit with Twin Mountain Quality Water - East (mg/L)	Estimated Screening Limit with Antiers Sand	
TDS	500	567.706	553	712	394	2,500.00	2,500.00	2,500.00	2,500.00

Pond Evaporation Characteristics						
Evaporation + Irrigation Loss =	138437545.40	gallons/year				
Supplemented Water for Pond =	197.50	gallons/minute				
Supplemented Water for Pond =	0.44	cfs				
Pond Surface Area =	13.00	acres				

Stream/Segment Characteristics		Data Below Accessed: 10/28/24		
Flow Type =	intermittent Flow	Procedures to Implement the Texas Surface Water Quality Standards - 2022		
Equation for Screening =	Equation 1	Procedures to Implement the Texas Surface Water Quality Standards - 2022		
Ambient Concentration TDS (mg/L) =	239	Procedures to Implement the Texas Surface Water Quality Standards - 2022		

Step 2: Determine Screening Value

Screening TDS Value =

2,500.00 mg/L

Step 3: Determine if Control Measure is needed

Screening TDS Value =

Maximum Effluent TDS Proposed =

2500 mg/L 712 mg/L

if, Screening Value > or = Maximum Effluent TDS then no control measure needed

If, Screening Value < Maximum Effluent TDS then a control measure is needed

Control Measure =

Chloride

Stream Type:

Intermittent Stream

Stream Name:

Unnamed to Little Elm Creek

Distance to Lake Lewisville:

14 miles

Step 1: Determine Screening Value for Intermittent Stream

Parameter	Existing Little Elm Creek (mg/L) Chloride Cc	Existing Adjacent Groundwater Well Concentrations (Twin Mountains Formation South - mg/L)		Existing Adjacent Groundwater Well Concentrations (Antlers Sand Formation- mg/L)	Groundwater Well	Estimated Screening Limit with Twin Mountain Quality Water - South (mg/L)	Limit with Twin	Estimated Screening Limit with Antlers Sand Quality	
Chloride	8	11.4	24	23	10.6	400.00	400,00	400.00	400.00

Pond Evaporation Characteristics						
Evaporation + Irrigation Loss =	138437545.40	gallons/year				
Supplemented Water for Pond =	197.50	gallons/minute				
Supplemented Water for Pond =	0.44	cfs				
Pond Surface Area =	13.00	acres				

Stream/Segment Chara	cteristics	Data Below Accessed: 10/28/24		
Flow Type =	Intermittent Flow	Procedures to Implement the Texas Surface Water Quality Standards - 2022		
Equation for Screening =	Cl Csv = (TDS Csv/TDS Cc)	* CI Cc		
Amblent Concentration Chloride (mg/L) =	17	Procedures to Implement the Texas Surface Water Quality Standards - 2022		

Step 2: Determine Screening Value

Screening TDS Value =

400.00 mg/L

Step 3: Determine if Control Measure is needed

Screening TDS Value =

Maximum Effluent TDS Proposed =

400 mg/L 24 mg/L

If, Screening Value > or = Maximum Effluent TDS then no control measure needed

If, Screening Value < Maximum Effluent TDS then a control measure is needed

Control Measure =

Sulfate

Stream Type:

Intermittent Stream

Stream Name:

Unnamed to Little Elm Creek

Distance to Lake Lewisville:

14 miles

#### Step 1: Determine Screening Value for Intermittent Stream

Parameter	Existing Little Elm Creek (mg/L) Sulfate Cc	Concentrations (Twin Mountains	Existing Adjacent Groundwater Well Concentrations (Twin Mountains Formation East - mg/L)	Existing Adjacent Groundwater Well Concentrations (Antiers Sand Formation- mg/L).	Existing Adjacent Groundwater Well Concentrations (Paluxy Sand Formation- mg/L)	I mit with Twin	Estimated Screening Limit	Estimated Screening Limit with Antiers Sand Quality Water (mg/L)	The state of the s
Sulfate	60	114	89	79	52.7	300.00	300.00	300.00	300.00

Pond Evaporation Characteristics						
Evaporation + Irrigation Loss =	138437545.40	gallons/year				
Supplemented Water for Pond =	197.50	gallons/minute				
Supplemented Water for Pond =	0.44	cfs	10			
Pond Surface Area =	13.00	acres				

Stream/Segment Chara	cteristics	Data Below Accessed: 10/28/24
Flow Type =	Intermittent Flow	Procedures to Implement the Texas Surface Water Quality Standards - 2022
Equation for Screening =	SO4 Csv = (TDS Csv/TI	OS Cc) * SO4 Cc
Ambient Concentration Chloride (mg/L) =		29 Procedures to Implement the Texas Surface Water Quality Standards - 2022

#### Step 2: Determine Screening Value

Screening TDS Value =

300.00 mg/L

Step 3: Determine if Control Measure is needed

Screening TDS Value =

300 mg/L

Maximum Effluent TDS Proposed =

114 mg/L

If, Screening Value > or = Maximum Effluent TDS then no control measure needed

If, Screening Value < Maximum Effluent TDS then a control measure is needed

Control Measure =

TDS

Stream Type: Stream Name: Lake

Lake Lewisville

Segment No. 0823

Step 1: Determine Screening Value for Lake

	Parameter	Existing Lake Lewisville (mg/L) TDS Cc	Concentrations (Twin Mountains		Concentrations (Antlers Sand Formation-		Estimated Screening Limit with Twin Mountain Quality Water - South (mg/L)	Limit with Twin	Estimated Screening Limit with Antiers Sand Quality	
TDS		500	567.706	553	712	394	2,500.00	2,500.00	2,500.00	2,500.00

Pond Evaporation Characteristics						
Evaporation + Irrigation Loss =	138437545.40	gallons/year				
Supplemented Water for Pond =	197.50	gallons/minute				
Supplemented Water for Pond =	0.44	cfs				
Pond Surface Area =	13.00	acres				

Stream/Segmer	nt Characteristics		Data Below Accessed: 10/2	8/24	
Flow Type =	Lake	Procedures to Implement the Texas Surface Water Quality Standards - 2022			
Equation for Screening =			Cc > or = (EF)(Ce)+(1-EF)(Ca)		
Ambient Concentration TDS (mg/L) =		239	Procedures to Implement the Texas Surface Water Qu	uality Standards - 2022	
Effluent Fraction (EF) =		0.08	Default for Lakes from Critical Conditions Memo		

Step 2: Evaluate Screening Value

New TDS Concentration (from Equation for Screening) =

Change in Ambient TDS =

265.30 mg/L 11.0%

ient TDS =

Step 4: Permit Limit Determination

	WLA =	3,501.50
LA = WLA * 0.93	LTA =	3,256.40
Daily Avg. = LTA * 1.47	Dally Average =	4,786.90
Daily Max. = LTA * 3.11	Daily Maximum =	14,887.26
	70% of Daily Average =	3,350.83
	85% of Daily Average =	4,068.87

No Permit Limitations Necessary

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Chloride

Stream Type:

Lake

Stream Name:

Lake Lewisville

Segment No. 0823

Step 1: Determine Screening Value for Lake

Parameter	Existing Lake Lewisville (mg/L) Chloride Cc	Concentrations (Twin Mountains		Concentrations (Antlers Sand Formation-		Estimated Screening Limit with Twin Mountain Quality Water - South (mg/L)	Estimated Screening Limit with Twin Mountain Quality Water - East (mg/L)	Estimated Screening Limit with Antiers Sand Quality Water (mg/L)	Estimated Screening Limit with Paluxy Sand Quality Water (mg/L)
Chloride	80	11.4	24	23	10.6	400.00	400.00	400.00	400.00

Pond Evaporation Characteristics					
Evaporation + Irrigation Loss =	138437545 40	gallons/year			
Supplemented Water for Pond =	197 50	gallons/minute			
Supplemented Water for Pond =	0.44	cts			
Pond Surface Area =	13.00	acres			

Stream/Segment Characteristics			Data Below Accessed: 10/28/24				
Flow Type =	Lake Procedures to Implement the Texas Surface Water Quality Standar						
Equation for Screening =		Cc > or = (EF)(Ce)+(1-EF)(Ca)					
Ambient Concentration TDS (mg/L) =		17 Procedures to Implement the Texas Surface Water Quality Standard					
Effluent Fraction (EF) =		0.08 Default for Lakes from Critical Conditions Memo					

Step 2: Evaluate Screening Value

New TDS Concentration (from Equation for Screening) =

Change in Ambient TDS =

17.56 mg/L 3.29%

>

Step 4: Permit Limit Determination

 LA = WLA \* 0.93
 LTA = LTA \* 1.47
 748.19

 Daily Avg. - LTA \* 1.47
 Daily Average = 1,099.83
 1,099.83

 Daily Max. - LTA \* 3.11
 Daily Average = 3,420.48
 70% of Daily Average = 769.88

 85% of Daily Average = 934.86
 934.86

No Permit Limitations Necessary

Sulfate

Stream Type:

Lake

Stream Name:

Lake Lewisville

Segment No. 0823

#### Step 1: Determine Screening Value for Lake

Parameter	Existing Lake Lewisville (mg/L) Sulfate Cc	Concentrations (Twin Plountains	Existing Adjacent Groundwater Well Concentrations (Twin Mountains Formation East - mg/L)	Existing Adjacent Groundwater Welt Concentrations (Antlers Sand Formation- mg/L)	Existing Adjacent Groundwater Well Concentrations (Paluxy Sand Formation: mg/L)	Estimated Screening Limit with Twin Mountain Quality Water - South (mg/L)	Quality Water - Fact	Estimated Screening Limit with Antlers Sand Quality Water (mg/L)	Limit with Paluxy Sand
Chloride	60	114	89	79	52.7	300.00	300.00	300.00	300.00

Pond Evaporation Characteristics						
Evaporation + Irrigation Loss =	138437545.40	gallons/year				
Supplemented Water for Pond =	197.50	gallons/minute				
Supplemented Water for Pond =	0.44	cts				
Pond Surface Area =	13.00	acres				

Stream/Segment Characteristics		Data Below Accessed: 10/28/24					
Flow Type =	Lake Procedures to Implement the Texas Surface Water Quality Standar						
Equation for Screening =		Cc > or = (EF)(Ce)+(1-EF)(Ca)					
Ambient Concentration TDS (mg/L) =		29 Procedures to Implement the Texas Surface Water Quality Standards - 202					
Effluent Fraction (EF) =	0.08 Default for Lakes from Critical Conditions Memo						

Step 2: Evaluate Screening Value

New TDS Concentration (from Equation for Screening) =

Change in Ambient TDS =

35.80 mg/L 23.4%

Step 4: Permit Limit Determination

WLA = 416.50 LA = WLA \* 0.93 LTA = 387.35 Dally Avg. = LTA \* 1.47 Daily Average = 569.40 Daily Max. = LTA \* 3.11 Daily Maximum = 1,770.83 70% of Daily Average = 398.58 85% of Daily Average = 483.99

No Permit Limitations Necessary

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Segment No.	Trinsity River Basin Segment Names	Recreation than	Aquatic Life Use	Domestic Mater Supply Use	Other Uses	Gr Gr	SO," mg/ti	TOS (reg/L)	Dissolved Oxygen (mg/L)	pti Range (SI/i)	Indicator Eacteria' #/100 mil.	Temperature (degrees f)
0815	Bardwell Reservoir	FCRI	11	2%		50	50	300	5.0	6,5-9,0	126	91
0816	Lake Wavabachie	PCRI	н	PS		50	50	300	5.0	6,5 9,0	126	91
0917	Navamo Milis Lake	FCRI	11	28		50	75	300	5.0	6590	126	90
OSIS	Cedar Creek Reservoic	PCRI	н	PS		50	200	200	5.0	6590	126	93
0819	Last Fork Trinity River	1821	1			100	300	500	4.0	6.5-9.0	126	91
0820	Lake Ray Habbard	PCRI	11	25		100	100	500	5.0	6.5 9.0	126	93
0821	taven take	IKNI	31	25		100	100	500	5.0	6.5 9.0	126	93
0522	Em Fork Tringy River Below Lessowife Lake	PORT	11	25		80	ω	500	5.0	6.5-9.0	126	90
0823	Lewiwille Lake	IXXI	11	9%		80	100	300	3.0	6.5 9.0	126	93
0824	film Fork Trinsity Kner Above Kay Koberts Lake	PCRI	М	15		110	90	700	5.0	6.5-9.0	126	-93
0825	Ovezen Creek	PCRI	н	PS		50	60	500	5.0	6.5-9.0	126	90
0826	Grapevise Lake	PCRI	11	25		10	60	500	5.0	65-90	126	93
0827	Where Book Lake	PCR1	11			199	100	400	5.0	6,5-9,0	126	91
0828	Lake Arlington	PCRI	н	PS		100	100	300	0.2	65-00	126	95
0529	Grar Fork Trirety River Selow Brobtook Lake	PCRI	11	25		100	100	300	5.0	65-90	126	93
0830	Sembrook Lake	PCRI	21	25		75	75	300	5.0	6.5-9.0	126	93

Source: https://www.tceq.texas.gov/downloads/permitting/water-quality-standards-implementation/jan-2003-Date Last Accessed: 10/29/2024

Segment Number	INS'	pH*	Total Hardson," (mg/L as CaCO <sub>2</sub> )	(mg/L)	(high)	Sulfate (eq.1.)
6615	1.3	5.4	54"	83	. 12	- 5
6614	16	7.5	5677	116	21	44.9
0815	- 6	1.6	66**	26270	12	26
6835	-4	3.2	947	1927	2	13
6617		7.5	94 <sup>(4)</sup>	214**	14	39
0618	5.5	2.2	9611	114	12.7	25.4
0579	16	7.5	100	35%	43	46
0520		7.5	54"	179	11	26
DEZE		2.7	5470	300	8	23
0075			150			
0623		2.5	44"	239	17	39

Source: https://www.tceq.texas.gov/downloads/permitting/water-quality-standards-implementation/jan-2003-ip.pdf
Date Last Accessed: 10/29/2024

# Unnamed Tributary to Long Branch Creek to Lavon Lake

TDS

Stream Type:

Intermittent Stream

Stream Name:

Unnamed to Long Branch Creek

Distance to Lake Lavon:

17 miles

Step 1: Determine Screening Value for Intermittent Stream

Parameter	Existing Long Branch Creek (mg/L) TDS Cc	Concentrations (Twin Mountains		Existing Adjacent Groundwater Well Concentrations (Antlers Sand Formation- mg/L)	Existing Adjacent Groundwater Well Concentrations (Paluxy Sand Formation- mg/L)	Estimated Screening Limit with Twin Mountain Quality Water - South (mg/L)	Limit with Twin Mountain	Estimated Screening Limit with Antlers Sand Quality Water (mg/L)	
TDS	500	567.706	553	712	394	2,500.00	2,500.00	2,500.00	2,500.00

Pond Evaporation Characteristics						
Evaporation + Irrigation Loss =	104851947.20	gallons/year				
Supplemented Water for Pond =	150.00	gallons/minute				
Supplemented Water for Pond =	0.33	cfs				
Pond Surface Area =	9.00	acres				

Stream/Segment Characteristics		Data Below Accessed: 10/28/24
Flow Type =	Intermittent Flow	Procedures to implement the Texas Surface Water Quality Standards - 2022
Equation for Screening =	Equation 1	Procedures to Implement the Texas Surface Water Quality Standards - 2022
Ambient Concentration TDS (mg/L) =	203	Procedures to Implement the Texas Surface Water Quality Standards - 2022

Step 2: Determine Screening Value

Screening TDS Value =

2,500.00 mg/L

Step 3: Determine if Control Measure is needed

Screening TDS Value =

Maximum Effluent TDS Proposed =

2500 mg/L

712 mg/L

If, Screening Value > or = Maximum Effluent TDS then no control measure needed If, Screening Value < Maximum Effluent TDS then a control measure is needed

Control Measure =

Control Measure Not Needed

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Chloride

Stream Type:

Intermittent Stream

Stream Name:

Unnamed to Long Branch Creek

Distance to Lake Lavon:

17 miles

#### Step 1: Determine Screening Value for Intermittent Stream

Parameter	Existing Long Branch Creek (mg/L) Chloride Cc	Concentrations (Twin Mountains	Existing Adjacent Groundwater Well Concentrations (Twin Mountains Formation East - mg/L)	Existing Adjacent Groundwater Well. Concentrations (Antiers Sand Formation-, mg/L).	Existing Adjacent Groundwater Well Concentrations (Paluxy Sand Formation- mg/L)	Estimated Screening Limit with Twin Mountain Quality Water - South (mg/L)	Estimated Screening Limit with Twin Mountain Quality Water - East (mg/L)		Estimated Screening Limit with Paluxy Sand Quality Water (mg/L)
Chloride	100	11.4	24	23	10.6	500.00	500.00	500.00	500.00

Pond Evaporation Characteristics						
Evaporation + Irrigation Loss =	104851947.20	gallons/year				
Supplemented Water for Pond =	150 00	gallons/minute				
Supplemented Water for Pond =	0.33	cfs				
Pond Surface Area ≠	9.00	acres				

Stream/Segment Chara	ecteristics	Data Below Accessed: 10/28/24		
Flow Type =	Intermittent Flow	Procedures to Implement the Texas Surface Water Quality Standards - 2022		
Equation for Screening =	C1 Csv = (TDS Csv/TDS	c) * Cl Cc		
Ambient Concentration Chloride (mg/L) =		B Procedures to Implement the Texas Surface Water Quality Standards - 2022		

Step 2: Determine Screening Value

Screening TDS Value =

500.00 mg/L

Step 3: Determine if Control Measure is needed

Screening TDS Value = Maximum Effluent TDS Proposed = 500 mg/L 24 mg/L

If, Screening Value > or = Maximum Effluent TDS then no control measure needed

If, Screening Value < Maximum Effluent TDS then a control measure is needed

Control Measure =

Sulfate

Stream Type:

Intermittent Stream

Stream Name:

Unnamed to Long Branch Creek

Distance to Lake Lavon:

17 miles

#### Step 1: Determine Screening Value for Intermittent Stream

Parameter	Existing Long Branch Creek (mg/L) Sulfate Gc	Concentrations (Twin Mountains	Existing Adjacent Groundwater Well Concentrations (Twin Mountains Formation East - mg/L)	Existing Adjacent Groundwater Well Concentrations (Antlers Sand Formation, mg/L).	Existing Adjacent Groundwater Well Concentrations (Paluxy Sand Formation- mg/L)	Estimated Screening Limit with Twin Mountain Quality Water - South (mg/L)	Estimated Screening Limit with Twin Mountain Quality Water - East (mg/L)	Estimated Screening Limit with Antlers Sand Quality Water (mg/L)	Limit with Paluxy Sand
Sulfate	100	114	89	79	52.7	500.00	500.00	500.00	500.00

Pond Evaporation Characteristics					
Evaporation + Irrigation Loss =	104851947.20	gallons/year			
Supplemented Water for Pond =	150.00	gallons/minute			
Supplemented Water for Pond =	0.33	cfs			
Pond Surface Area ≈	9.00	acres			

Stream/Segment Characteristics		Data Below Accessed: 10/28/24		
Flow Type =	Intermittent Flow	Procedures to Implement the Texas Surface Water Quality Standards - 2022		
Equation for Screening =	SO4 Csv = (TDS Csv/TI	OS Cc) * SO4 Cc		
Ambient Concentration Chloride (mg/L) =	23 Procedures to Implement the Texas Surface Water Quality Standards - 2022			

#### Step 2: Determine Screening Value

Screening TDS Value =

500.00 mg/L

Step 3: Determine if Control Measure is needed

Screening TDS Value =

500 mg/L

Maximum Effluent TDS Proposed =

114 mg/L

If, Screening Value > or = Maximum Effluent TDS then no control measure needed

If, Screening Value < Maximum Effluent TDS then a control measure is needed

Control Measure =

TDS Lake

Stream Type: Stream Name:

Lake Lavon

Segment No. 0821

Step 1: Determine Screening Value for Lake

Parameter	Existing Lake Lavon (mg/L) TDS Cc	Concentrations (Twin Mountains		Existing Adjacent Groundwater Well Concentrations (Antlers Sand Formation- mg/L)	Existing Adjacent Groundwater Well	Estimated Screening Limit with Twin Mountain Quality Water - South (mg/L)	Limit with Twin Mountain	Estimated Screening	Limit with Paluxy Sand
DS	500	567.706	553	712	394	2,500.00	2,500.00	2,500.00	2,500.00

Pond Evaporation Characteristics					
Evaporation + Irrigation Loss =	104851947.20 ga	illons/year			
Supplemented Water for Pond =	150.00 ga	illons/minute			
Supplemented Water for Pond =	0.33 cf	s			
Pond Surface Area =	9.00 ac	res			

Stream/Segment Characteristics		Data Below Accessed: 10/28/24			
Flow Type =	Lake	Procedures to Implement the Texas Surface Water Quality Standards - 2			
Equation for Screening =	Cc > or = (EF)(Ce)+(1-EF)(Ca)				
Ambient Concentration TDS (mg/L) =		203 Procedures to Implement the Texas Surface Water Quality Standards -			
Effluent Fraction (EF) =		0.08 Default for Lakes from Critical Conditions Memo			

Step 2: Evaluate Screening Value

New TDS Concentration (from Equation for Screening) =

232.18 mg/L 14.37%

Change in Ambient TDS =

Step 4: Permit Limit Determination

	WLA =	3,915.50
LA = WLA * 0.93	LTA =	3,641.42
Daily Avg. = LTA * 1.47	Daily Average =	5,352.88
Daily Max. = LTA * 3.11	Daily Maximum =	16,647.46
	70% of Daily Average =	3,747.02
	85% of Daily Average =	4 549 95

No Permit Limitations Necessary

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Screening: Stream Type: Chloride

Stream Name:

Lake

Lake Lavon Lake

Segment No. 0821

Step 1: Determine Screening Value for Lake

Parameter	Existing Lake Lavon (mg/L) TDS Cc	Concentrations (Twin Mountains		Existing Adjacent Groundwater Well Concentrations (Antiers Sand Formation- mg/L)	Existing Adjacent Groundwater Well	Estimated Screening Limit with Twin Mountain Quality Water - South (mg/L)	Limit with Twin Mountain	Estimated Screening	Limit with Paluxy Sand
Chloride	100	11.4	24	23	10.6	500.00	500.00	500.00	500.00

Pond Evaporation Characteristics					
Evaporation + Irrigation Loss =	104851947 20 ga	illons/year			
Supplemented Water for Pond =	150.00 ga	illons/minute			
Supplemented Water for Pond =	0.33 cfs	s			
Pond Surface Area =	9.00 ac	res			

Stream/Segment Characteristics		Data Below Accessed: 10/28/24				
Flow Type =	Lake	Procedures to Implement the Texas Surface Water Quality Standards -				
Equation for Screening =	Cc > or = (EF)(Ce)+(1-EF)(Ca)					
Ambient Concentration TDS (mg/L) =	8 Procedures to Implement the Texas Surface Water Quality Standards - 202					
Effluent Fraction (EF) =		0.08 Default for Lakes from Critical Conditions Merno				

Step 2: Evaluate Screening Value

New TDS Concentration (from Equation for Screening) =

9.28 mg/L

Change in Amblent TDS =

16.00%

Step 4: Permit Limit Determination

 LA = WLA \* 0.93
 ULA = LTA \* 1.47
 1,58.00

 Daily Avg. = LTA \* 1.47
 Daily Average = 1,583.10

 Daily Max. = LTA \* 3.11
 Daily Maximum = 4,923.45

 70% of Daily Average = 1,345.64
 1,345.64

No Permit Limitations Necessary

Sulfate

Stream Type:

Lake Lake Lavon

Stream Name:

Segment No. 0821

Step 1: Determine Screening Value for Lake

Parameter	Existing Lake Lavon (mg/L) TDS Cc	Existing Adjacent Groundwater Well Concentrations (Twin Mountains Formation South - mg/L)		Existing Adjacent Groundwater Well Concentrations (Antlers Sand Formation- mg/L)		Estimated Screening Limit with Twin Mountain Quality Water - South (mg/L)	I imit with Twin Mountain	Estimated Screening Limit with Antlers Sand	Estimated Screening Limit with Paluxy Sand Quality Water (mg/L)
Chloride	100	114	89	79	52.7	500.00	500.00	500.00	500.00

Pond Evaporation Characteristics						
Evaporation + Irrigation Loss =	104851947.20	gallons/year				
Supplemented Water for Pond =	150.00	gallons/minute	- XX			
Supplemented Water for Pond =	0.33	cfs				
Pond Surface Area =	9.00	acres				

Stream/Segment Characteristics		Data Below Accessed: 10/28/24					
Flow Type =	Lake Procedures to Implement the Texas Surface Water Quality Standards						
Equation for Screening =	Cc > or = (EF)(Ce)+(1-EF)(Ca)						
Ambient Concentration TDS (mg/L) =	23 Procedures to Implement the Texas Surface Water Quality Standards - 20						
Effluent Fraction (EF) =	0.08 Default for Lakes from Critical Conditions Memo						

Step 2: Evaluate Screening Value

New TDS Concentration (from Equation for Screening) =

Change in Ambient TDS =

30.28 mg/L 31.65%

Ambient TDS = 3

Step 4: Permit Limit Determination

 LA = WLA \* 0.93
 ULA = UTA \* 1.47
 916.52

 Daily Avg. = LTA \* 1.47
 Daily Average = 1,347.28

 Daily Max. = LTA \* 3.11
 Daily Maximum = 4,190.03

 70% of Daily Average = 943.09
 943.09

 85% of Daily Average = 1,145.19
 1,145.19

No Permit Limitations Necessary

Source:

https://www.tceq.texas.gov/downloads/permitting/water-quality-standards-implementation/jan-2003-ip.pdf

Date Last Accessed: 10/29/2024

Segment No.	Trinity River Basin Segment Names	Recreation Use	Aquatic Life Use	Domestic Water Supply Use	Other Uses	Cl <sup>+</sup> (mg/L)	SO, <sup>2</sup> (mg/L)	TDS (mg/L)	Oxygen (mg/L)	pH Range (SU)	Indicator Bacteria <sup>†</sup> #/100 mL	Temperature (degrees F)
0815	Bardwell Reservoir	PCR1	н	PS		50	50	300	5.0	6.5-9.0	126	91
0816	Lake Waxahachie	PCRI	Н	PS		50	50	300	5.0	6.5-9.0	126	91
0817	Navarro Mills Lake	PCR1	н	PS		50	75	300	5.0	6.5-9.0	126	90
0818	Cedar Creek Reservoir	PCR1	н	PS		50	100	200	5.0	6.5-9.0	126	93
0819	East Fork Trinity River	PCRI	1			100	100	500	4.0	6.5-9.0	126	91
0820	Lake Ray Hubbard	PCRI	н	PS		100	100	500	5.0	6.5-9.0	126	93
0821	Lavon Lake	PCR1	н	PS		100	100	500	5.0	6.5-9.0	126	93
0822	Elm Fork Trinity River Below Lewisville Lake	PCR1	н	PS		80	60	500	5.0	6.5-9.0	126	90
0823	Lewisville Lake	PCR1	н	PS		80	60	500	5.0	6.5-9.0	126	90
0824	Elm Fork Trinity River Above Ray Roberts Lake	PCR1	н	PS <sup>1</sup>		110	90	700	5.0	6.5-9.0	126	90
0823	Denton Creek	PCR1	Н	PS		80	60	500	5.0	6.5-9.0	126	90
0826	Grapevine Lake	PCR1	Н	PS		80	60	500	5.0	6.5-9.0	126	93
0827	White Rock Lake	PCR1	н	all		100	100	400	5.0	6.5-9.0	126	93
0828	Lake Arlington	PCR1	Н	PS		100	100	300	5.0	6.5-9.0	126	95
0829	Clear Fork Trinity River Below Benbrook Lake	PCR1	Н	PS		100	100	500	5.0	6.5-9.0	126	93
0830	Benbrook Lake	PCR1	н	PS		75	75	300	5.0	6.5-9.0	126	93

Segment Number	TSS <sup>1</sup> (mg/L)	pH (s.u.)	Total Hardness (mg/L as CaCO <sub>j</sub> )	TDS <sup>2</sup> (mg/L)	Chloride <sup>2</sup> (mg/L)	Sulfate 2 (mg/L)
0813	1.5	6.4	9414	81	12	9
0814	16	7.5	76 tot	316	21	66.9
0815	5	7.4	9414	202 (h)	12	26
0816	4	7.2	94 141	187 <sup>(h)</sup>	7	15
0817	5	7.5	9410	214 th	14	39
0818	5.5	7.2	9414	114	12.7	25.4
0819	16	7.3	110	358	43	46
0520		75	9144	170	1	26
0821	5	7.7	9414	203	8	_23
0822	12.	7.53	100	269	23	40
0823	5	7.5	94 144	239	17	29
						1

Date Last Accessed: 10/29/2024



MAR 13 2025

# ATTACHMENT D Dam Safety Documents

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MAR 13 2025

## Alderman, Nadia (Whitehouse)

From:

Johnny Cosgrove <johnny.cosgrove@tceq.texas.gov>

Sent:

Tuesday, December 31, 2024 10:24 AM

To:

Alderman, Nadia (Whitehouse)

Cc:

Adams, Darby; Trina Lancaster; Ross, Casey

Subject:

RE: Water Right Permit Ramble- Celina, TX

Hello Nadia -

Appreciate the response and additional information. Yes, it appears that the proposed dam will require our review and approval. Also, please note that (per our rules) we cannot issue our formal letter of approval for the construction plans until after the water right permit has been granted, even if you have satisfactorily addressed all our review comments. Once available, please submit the noted breach analysis that (you indicated in your email below) will be done with the final design. Just FYI – we can review/approve the breach analysis prior to the water right permit issuance.

Thank you, Johnny

From: Alderman, Nadia (Whitehouse)

Sent: Monday, December 30, 2024 1:26 PM

To: Johnny Cosgrove < johnny.cosgrove@tceq.texas.gov>

Cc: Adams, Darby

Trina Lancaster < Trina. Lancaster@tceq.texas.gov>; Ross, Casey

Subject: RE: Water Right Permit Ramble- Celina, TX

Good afternoon Johnny,

Thank you so much for your speedy response. Please see my responses below in red. I have updated the map and included it with this email.

Thanks!

Nadia Alderman (Whitehouse), PE (TX), CFM
Kimley-Horn | 6160 Warren Parkway, Suite 210, Frisco TX 75034
Direct: 469 473 2995 | | Main: 972 335 3580

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Water Availability Division

From: Johnny Cosgrove < johnny.cosgrove@tceq.texas.gov>

Sent: Thursday, December 19, 2024 4:34 PM

To: Alderman, Nadia (Whitehouse)

Cc: Adams, Darby

Trina Lancaster < Trina. Lancaster@tceq.texas.gov>; Ross, Casey

Subject: RE: Water Right Permit Ramble-Celina, TX

Hello Ms. Alderman -

It appears that additional information will be needed before I can give you a positive determination. A few questions/comments:

- NRCS Dam Little Elm and Laterals WS SCS Site 18A Dam (TX01128):
  - Your email below indicates that "the existing impoundment on the NRCS reservoir will not be modified"; however, the submitted exhibit indicates a "Volume Impounded: 510 ac-ft", which is inconsistent with TCEQ records that reflect:
  - Normal Storage: 74 ac-ft
  - Maximum Storage: 779 ac-ft
  - Please clarify regarding the apparent discrepancy. I was using the values reflected in the record drawings provided to us by NRCS. The values on the map have been updated to reflect the storage from TCEQ records.
- Proposed Dam:
  - There appears to be an existing dam at this location (appears to be a proposed modification to an existing dam vs. proposed dam). Please clarify and/or revise. There is an existing structure there that we will be removing and then replacing with a new structure.
  - What will be the hazard classification for the proposed dam configuration, and was a breach analysis conducted to make the determination? Based on the downstream conditions of the reservoir, it would be a low hazard dam. A dam breach analysis will be done with final design.
  - The submitted exhibit indicates:
    - "Height of Impoundment = 8 feet"; is this the dam embankment height or the height (depth) of the impoundment (reservoir)? If the latter, then what will be the actual embankment height of the proposed/modified dam configuration?
    - "Volume Impounded: 75 ac-ft"; is this the normal pool capacity or maximum (top of dam) capacity? If the former, then what will be maximum capacity?
  - 8 feet would be the dam embankment height. For volume impounded, this would be the normal pool capacity. The maximum capacity would be approximately 105 ac-ft.

Thanks, Johnny

Mail:

Johnny Cosgrove, PE Dam Safety Section Critical Infrastructure Division (512) 239-4307



Texas Commission on Environmental Quality Physical: 12100 Park 35 Circle, Bldg. A, MC-177

Austin, TX 78753

P.O. Box 13087, MC-177

Austin, TX 78711-3087

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Water Availability Division

Dam Safety Section Website

From: Alderman, Nadia (Whitehouse)

Sent: Thursday, December 19, 2024 3:26 PM

To: Johnny Cosgrove < johnny.cosgrove@tceq.texas.gov>

Cc: Adams, Darby
Trina Lancaster < Trina.Lancaster@tceq.texas.gov>; Ross, Casey

Subject: Water Right Permit Ramble- Celina, TX

Good afternoon Johnny,

We are currently working on a water right permit application in Collin County, which will include 2 retention ponds: an existing NRCS reservoir and a proposed pond. Each pond will have a retention component and will use groundwater to replace water lost to irrigation and evaporation. I have included an exhibit with this email that shows the locations and details of these ponds.

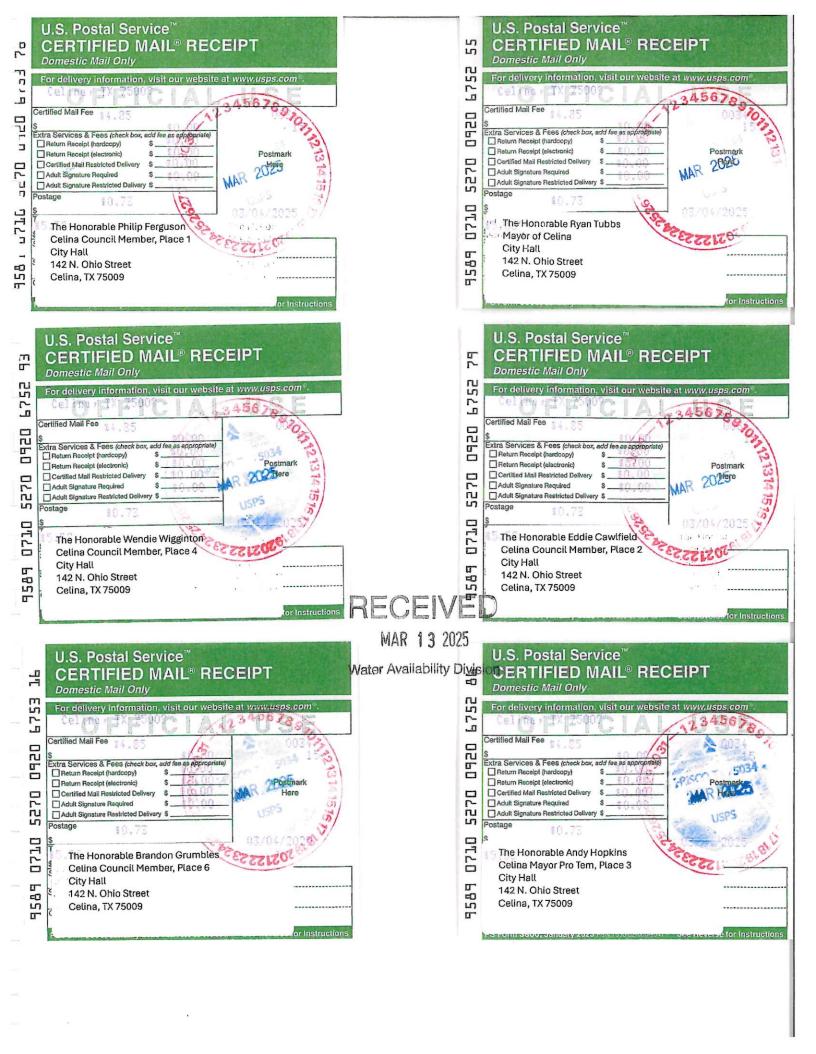
In the past, we have included an email or letter from your group indicating whether review by TCEQ Dam Safety is/is not required. Can you please provide a response regarding whether dam safety review is required for this project, so I can include that with my water right permit application? Of the two ponds identified on these maps, the existing impoundment on the NRCS reservoir will not be modified, and construction plans for the proposed pond will likely not occur until after 2025.

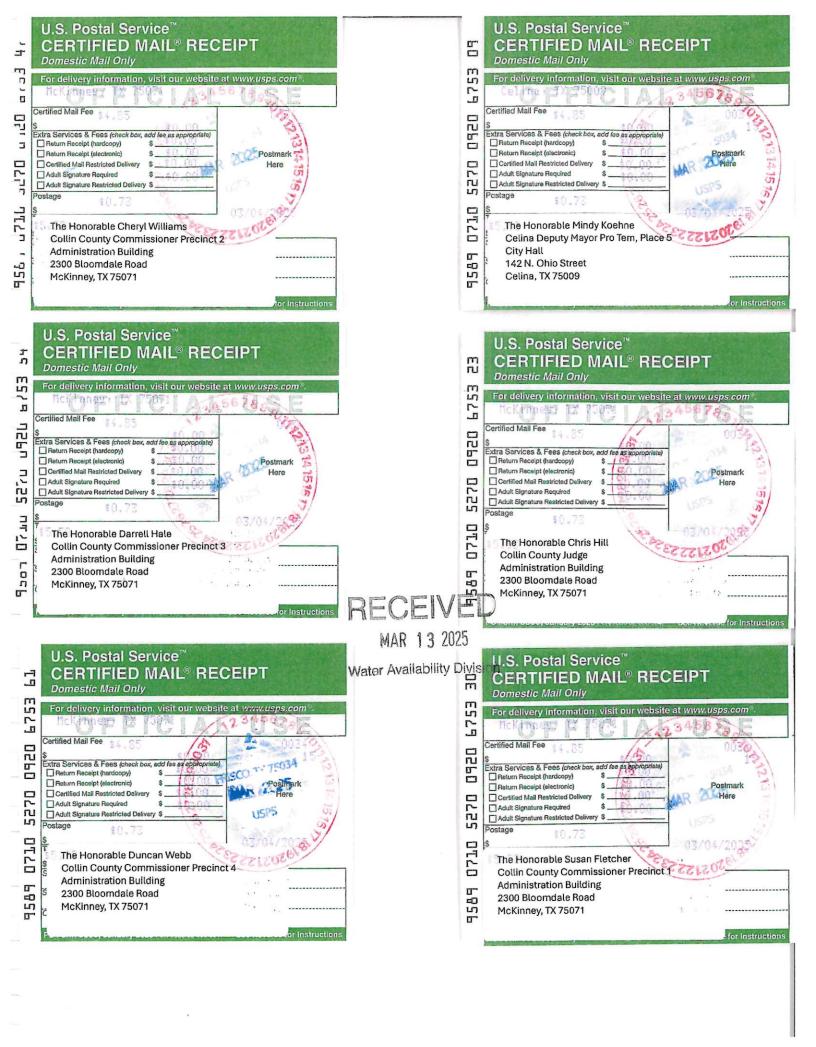
Thank you! Nadia Alderman

Nadia Alderman (Whitehouse), PE (TX), CFM
Kimley-Horn | 6160 Warren Parkway, Suite 210, Frisco TX 75034
Direct: 469 473 2995 | | Main: 972 335 3580

# ATTACHMENT D.1 Notices to Governing Bodies









The Honorable Ryan Tubbs Mayor of Celina City Council Representative City Hall 142 N. Ohio Street Celina, TX 75009

Subject: Ramble

Application for Permit to Appropriate State Water

City of Celina, Collin County, Texas

Dear Mr./Mrs. Tubbs:

Ramble Investment, LP is proposing to construct a single-family development within the City of Celina, Collin County Texas. The project is east of N Preston Road and north of County Road 96.

As part of the plan for the development, Ramble Investment, LP is applying for a Water Rights Permit to construct and maintain reservoirs for in-place recreation as part of the drainage conveyance systems on Unnamed Tributary to Little Elm Creek Tributary and Unnamed Tributary to Long Branch in the Trinity River Watershed in the City of Celina, Collin County, Texas.

The proposed plan for the development includes the transition of water usage of two reservoirs from agricultural to recreational usage. The water lost due to these changes is intended to be replaced using groundwater; therefore, no reduction of downstream volumes and impacts to other water rights are anticipated.

Ramble Investment, LP is pursuing this application to appropriate State Water with the Texas Commission on Environmental Quality (TCEQ). Notification of the application will be sent to all Water Rights holders in the Trinity Watershed as well as to all of the members of the Celina City Council and Collin County Commissioners Court. If you have any questions regarding this application, please do not hesitate to call our offices.

Sincerely,

Ramble Investment, LP

MAR 13 2025



The Honorable Philip Ferguson Celina Council Member, Place 1 City Council Representative City Hall 142 N. Ohio Street Celina, TX 75009

Subject: Ramble

Application for Permit to Appropriate State Water

City of Celina, Collin County, Texas

Dear Mr./Mrs. Ferguson:

Ramble Investment, LP is proposing to construct a single-family development within the City of Celina, Collin County Texas. The project is east of N Preston Road and north of County Road 96.

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Sincerely,

Ramble Investment, LP

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The Honorable Eddie Cawlfield Celina Council Member, Place 2 City Council Representative City Hall 142 N. Ohio Street Celina, TX 75009

Subject: Ramble

Application for Permit to Appropriate State Water

City of Celina, Collin County, Texas

Dear Mr./Mrs. Cawlfield:

Ramble Investment, LP is proposing to construct a single-family development within the City of Celina, Collin County Texas. The project is east of N Preston Road and north of County Road 96.

As part of the plan for the development, Ramble Investment, LP is applying for a Water Rights Permit to construct and maintain reservoirs for in-place recreation as part of the drainage conveyance systems on Unnamed Tributary to Little Elm Creek Tributary and Unnamed Tributary to Long Branch in the Trinity River Watershed in the City of Celina, Collin County, Texas.

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Sincerely,

Ramble Investment, LP

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MAR 13 2025

Water Availability Division



The Honorable Andy Hopkins Celina Mayor Pro Tem, Place 3 City Council Representative City Hall 142 N. Ohio Street Celina, TX 75009

Subject: Ramble

Application for Permit to Appropriate State Water

City of Celina, Collin County, Texas

Dear Mr./Mrs. Hopkins:

Ramble Investment, LP is proposing to construct a single-family development within the City of Celina, Collin County Texas. The project is east of N Preston Road and north of County Road 96.

As part of the plan for the development, Ramble Investment, LP is applying for a Water Rights Permit to construct and maintain reservoirs for in-place recreation as part of the drainage conveyance systems on Unnamed Tributary to Little Elm Creek Tributary and Unnamed Tributary to Long Branch in the Trinity River Watershed in the City of Celina, Collin County, Texas.

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Sincerely,

Place Ford
Ramble Investment, LP

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MAR 13 2025



A PEROT COMPANY

February 27, 2025

The Honorable Wendie Wigginton Celina Council Member, Place 4 City Council Representative City Hall 142 N. Ohio Street Celina, TX 75009

Subject: Ramble

Application for Permit to Appropriate State Water

City of Celina, Collin County, Texas

Dear Mr./Mrs. Wigginton:

Ramble Investment, LP is proposing to construct a single-family development within the City of Celina, Collin County Texas. The project is east of N Preston Road and north of County Road 96.

As part of the plan for the development, Ramble Investment, LP is applying for a Water Rights Permit to construct and maintain reservoirs for in-place recreation as part of the drainage conveyance systems on Unnamed Tributary to Little Elm Creek Tributary and Unnamed Tributary to Long Branch in the Trinity River Watershed in the City of Celina, Collin County, Texas.

The proposed plan for the development includes the transition of water usage of two reservoirs from agricultural to recreational usage. The water lost due to these changes is intended to be replaced using groundwater; therefore, no reduction of downstream volumes and impacts to other water rights are anticipated.

Ramble Investment, LP is pursuing this application to appropriate State Water with the Texas Commission on Environmental Quality (TCEQ). Notification of the application will be sent to all Water Rights holders in the Trinity Watershed as well as to all of the members of the Celina City Council and Collin County Commissioners Court. If you have any questions regarding this application, please do not hesitate to call our offices.

Sincerely,

Ramble Investment, LP

llaine Ford

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The Honorable Mindy Koehne Celina Deputy Mayor Pro Tem, Place 5 City Council Representative City Hall 142 N. Ohio Street Celina, TX 75009

Subject: Ramble

Application for Permit to Appropriate State Water

City of Celina, Collin County, Texas

Dear Mr./Mrs. Koehne:

Ramble Investment, LP is proposing to construct a single-family development within the City of Celina, Collin County Texas. The project is east of N Preston Road and north of County Road 96.

As part of the plan for the development, Ramble Investment, LP is applying for a Water Rights Permit to construct and maintain reservoirs for in-place recreation as part of the drainage conveyance systems on Unnamed Tributary to Little Elm Creek Tributary and Unnamed Tributary to Long Branch in the Trinity River Watershed in the City of Celina, Collin County, Texas.

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Sincerely,

Ramble Investment, LP

leine Ford

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February 27, 2025

The Honorable Brandon Grumbles Celina Council Member, Place 6 City Council Representative City Hall 142 N. Ohio Street Celina, TX 75009

Subject: Ramble

Application for Permit to Appropriate State Water

City of Celina, Collin County, Texas

Dear Mr./Mrs. Grumbles:

Ramble Investment, LP is proposing to construct a single-family development within the City of Celina, Collin County Texas. The project is east of N Preston Road and north of County Road 96.

As part of the plan for the development, Ramble Investment, LP is applying for a Water Rights Permit to construct and maintain reservoirs for in-place recreation as part of the drainage conveyance systems on Unnamed Tributary to Little Elm Creek Tributary and Unnamed Tributary to Long Branch in the Trinity River Watershed in the City of Celina, Collin County, Texas.

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Sincerely,

Ramble Investment, LP

llaine Ford

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MAR 13 2025



The Honorable Chris Hill Collin County Judge Commissioners Court Administration Building 2300 Bloomdale Road McKinney, TX 75071

Subject: Ramble

Application for Permit to Appropriate State Water

City of Celina, Collin County, Texas

Dear Mr./Mrs. Hill:

Ramble Investment, LP is proposing to construct a single-family development within the City of Celina, Collin County Texas. The project is east of N Preston Road and north of County Road 96.

As part of the plan for the development, Ramble Investment, LP is applying for a Water Rights Permit to construct and maintain reservoirs for in-place recreation as part of the drainage conveyance systems on Unnamed Tributary to Little Elm Creek Tributary and Unnamed Tributary to Long Branch in the Trinity River Watershed in the City of Celina, Collin County, Texas.

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Sincerely,

Ramble Investment, LP

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A PEROT COMPANY

February 27, 2025

The Honorable Susan Fletcher Collin County Commissioner Precinct 1 Commissioners Court Administration Building 2300 Bloomdale Road McKinney, TX 75071

Subject: Ramble

Application for Permit to Appropriate State Water

City of Celina, Collin County, Texas

Dear Mr./Mrs. Fletcher:

Ramble Investment, LP is proposing to construct a single-family development within the City of Celina, Collin County Texas. The project is east of N Preston Road and north of County Road 96.

As part of the plan for the development, Ramble Investment, LP is applying for a Water Rights Permit to construct and maintain reservoirs for in-place recreation as part of the drainage conveyance systems on Unnamed Tributary to Little Elm Creek Tributary and Unnamed Tributary to Long Branch in the Trinity River Watershed in the City of Celina, Collin County, Texas.

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Ramble Investment, LP is pursuing this application to appropriate State Water with the Texas Commission on Environmental Quality (TCEQ). Notification of the application will be sent to all Water Rights holders in the Trinity Watershed as well as to all of the members of the Celina City Council and Collin County Commissioners Court. If you have any questions regarding this application, please do not hesitate to call our offices.

Sincerely,

Ramble Investment, LP

llaine Ford

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Water Availability Division





The Honorable Cheryl Williams Collin County Commissioner Precinct 2 Commissioners Court Administration Building 2300 Bloomdale Road McKinney, TX 75071

Subject: Ramble

Application for Permit to Appropriate State Water

City of Celina, Collin County, Texas

Dear Mr./Mrs. Williams:

Ramble Investment, LP is proposing to construct a single-family development within the City of Celina, Collin County Texas. The project is east of N Preston Road and north of County Road 96.

As part of the plan for the development, Ramble Investment, LP is applying for a Water Rights Permit to construct and maintain reservoirs for in-place recreation as part of the drainage conveyance systems on Unnamed Tributary to Little Elm Creek Tributary and Unnamed Tributary to Long Branch in the Trinity River Watershed in the City of Celina, Collin County, Texas.

The proposed plan for the development includes the transition of water usage of two reservoirs from agricultural to recreational usage. The water lost due to these changes is intended to be replaced using groundwater; therefore, no reduction of downstream volumes and impacts to other water rights are anticipated.

Ramble Investment, LP is pursuing this application to appropriate State Water with Children of the state of the st the Texas Commission on Environmental Quality (TCEQ). Notification of the application will be sent to all Water Rights holders in the Trinity Watershed as well as to all of the members of the Celina City Council and Collin County Commissioners Court. If you have any questions regarding this application, please do not hesitate to call our offices.

Sincerely,

Ramble Investment, LP

Ilaine Fo



The Honorable Darrell Hale Collin County Commissioner Precinct 3 Commissioners Court Administration Building 2300 Bloomdale Road McKinney, TX 75071

Subject: Ramble

Application for Permit to Appropriate State Water

City of Celina, Collin County, Texas

Dear Mr./Mrs. Hale:

Ramble Investment, LP is proposing to construct a single-family development within the City of Celina, Collin County Texas. The project is east of N Preston Road and north of County Road 96.

As part of the plan for the development, Ramble Investment, LP is applying for a Water Rights Permit to construct and maintain reservoirs for in-place recreation as part of the drainage conveyance systems on Unnamed Tributary to Little Elm Creek Tributary and Unnamed Tributary to Long Branch in the Trinity River Watershed in the City of Celina, Collin County, Texas.

The proposed plan for the development includes the transition of water usage of two reservoirs from agricultural to recreational usage. The water lost due to these changes is intended to be replaced using groundwater; therefore, no reduction of downstream volumes and impacts to other water rights are anticipated.

Ramble Investment, LP is pursuing this application to appropriate State Water with the Texas Commission on Environmental Quality (TCEQ). Notification of the Water Projection Director application will be sent to all Water Rights holders in the Trinity Watershed as well as to all of the members of the Celina City Council and Collin County Commissioners Court. If you have any questions regarding this application, please do not hesitate to call our offices.

Sincerely,

Ramble Investment, LP

flaine Fro



February 27, 2025

The Honorable Duncan Webb Collin County Commissioner Precinct 4 Commissioners Court Administration Building 2300 Bloomdale Road McKinney, TX 75071

Subject: Ramble

Application for Permit to Appropriate State Water

City of Celina, Collin County, Texas

Dear Mr./Mrs. Webb:

Ramble Investment, LP is proposing to construct a single-family development within the City of Celina, Collin County Texas. The project is east of N Preston Road and north of County Road 96.

As part of the plan for the development, Ramble Investment, LP is applying for a Water Rights Permit to construct and maintain reservoirs for in-place recreation as part of the drainage conveyance systems on Unnamed Tributary to Little Elm Creek Tributary and Unnamed Tributary to Long Branch in the Trinity River Watershed in the City of Celina, Collin County, Texas.

The proposed plan for the development includes the transition of water usage of two reservoirs from agricultural to recreational usage. The water lost due to these changes is intended to be replaced using groundwater; therefore, no reduction of downstream volumes and impacts to other water rights are anticipated.

Ramble Investment, LP is pursuing this application to appropriate State Water with the Texas Commission on Environmental Quality (TCEQ). Notification of the RECEIVED A 2025 Division application will be sent to all Water Rights holders in the Trinity Watershed as well as to all of the members of the Celina City Council and Collin County Commissioners Court. If you have any questions regarding this application, please do not hesitate to call our offices.

Sincerely,

Ramble Investment, LP

Ilaine Ford

# ATTACHMENT D.2

Recorded Deeds for Inundated Land

2018-383755

"NOTICE OF CONFIDENTIALITY RIGHTS: IF YOU ARE A NATURAL PERSON, YOU MAY REMOVE OR STRIKE ANY OR ALL OF THE FOLLOWING INFORMATION FROM THIS INSTRUMENT BEFORE IT IS FILED FOR RECORD IN THE PUBLIC RECORDS: YOUR SOCIAL SECURITY NUMBER OR YOUR DRIVER'S LICENSE NUMBER."

### SPECIAL WARRANTY DEED

STATE OF TEXAS	§	
	Ş	KNOW ALL PERSONS BY THESE PRESENTS:
COUNTY OF COLLIN	§	

THAT, E REAL ESTATE, LP, a Texas limited partnership, and CEI LTD., a Texas limited partnership (collectively, "Grantor") for and in consideration of Ten Dollars (\$10.00) and other good and valuable consideration in hand paid by INVESTMENT, LP, a Delaware limited partnership ("Grantee") whose address Creek Boulevard, Dallas, Texas 75219, the receipt and sufficiency acknowledged, has GRANTED, BARGAINED, SQLD and CONVEYED and by these presents does GRANT, BARGAIN, SELL and CONVEY undo Granted that certain real property located in Collin County. Texas, and being more particularly described in Exhibit A attached hereto and incorporated herein by this reference for all purposes, together with all and singular the improvements, buildings, structures and factures located thereon or attached thereto and all and singular the rights, interests, benefits, privileges and easements of Grantor appertaining to or benefitting the land, all right, title and interest of Grantor in and to all strips and gores and any land lying in the bed of any street, right of-way, road or alley, open or proposed, adjoining the land, any rights, titles and interests of Granter appurtenant to the land, including, but not limited to any and all water interests of whatever nature producing or nonproducing, relating to said land and all right, title and interest of Grantor in and to all utilities and utility availability, sewage treatment capacity and water applicity which serves or will serve the land (collectively, the "Property").

This conveyance is made and accepted subject to all those certain easements, covenants, restrictions and other matters more particularly described in <a href="Exhibit B">Exhibit B</a> attached hereto and incorporated herein by this reference for all purposes, to the extent that same are valid and subsisting and affect the Property (collectively, the "Permitted Exceptions").

Grantor reserves to total and its successors and assigns forever, all of Grantor's interest in all oil. Eas and other minerals in and under and that may be produced from the Property (the "Reserved Minerals"); provided however, this conveyance shall include, and Grantor hereby grants, conveys and assigns to Grantee, without limitation, all rights, titles, and interests of Grantor (whether reserved or granted or otherwise possessed or owned [as a lessor, or successor or assign of any lessor, under any oil and gas lease] or otherwise) and relating in any manner to the surface of the land, including without limitation those arising under, or pursuant to, any oil, gas and mineral leases, surface agreements, surface waivers, and any other conveyance, instrument, or document filed for record, or a memorandum of which is filed for record, in the county in which the Property is located and any amendments or modifications thereto. Grantor hereby waives and releases, on behalf of

Special Warranty Deed - Page 1 4306501v3

MAR 13 2025

Grantor and Grantor's heirs, successors and assigns, all rights of ingress and egress and all other rights of every kind and character whatsoever to enter upon or to use the surface of the Property or any part thereof, including, without limitation, the right to enter upon the surface of the Property for purposes of exploring for, developing and/or producing the oil, gas and/or other minerals in and under, and that may be produced from, the Property, or any other purpose incident thereto. Any lease of oil, gas and/or other minerals now on or hereafter covering the Property, or any portion thereof, shall be expressly made subject to the terms and provisions of this instrument.

TO HAVE AND TO HOLD the Property, together with all and singular the rights and appurtenances thereto in anywise belonging unto Grantee, its successors and assigns forever; and Grantor does hereby bind itself, its successors and assigns to WARRANT AND FOREVER DEFEND all and singular the title to the Property unto Grantee, its successors and assigns, against every person whomsoever lawfully claiming or to claim the Property or any part thereof, by, through or under Grantor, but not otherwise; subject only, however, to the Permitted Exceptions. EXCEPT AS EXPRESSLY PROVIDED HEREIN OR IN THAT CRRTAIN HURCHASE AND SALE AGREEMENT DATED JUNE 28, 2023, BY AND AMONG GRANFOR AND GRANTEE (AS AMENDED, THE "PURCHASE AGREEMENT"), IT IS UNDERSTOOD AND WARRANTIES AGREED THAT GRANTOR IS NOT MAKING ANY REPRESENTATIONS OF ANY KIND OR CHARACTER, EXPRESS OR IMPLIED, WITH RESPECT TO THE PROPERTY, INCLUDING, SUT NOT LIMITED TO, WARRANTIES OR REPRESENTATIONS AS TO MATTERS OF NILE OTHER THAN GRANTOR'S WARRANTY OF TITLE SET FORTHAN, THE RURCHASE AGREEMENT OR HEREIN), ZONING, TAX CONSEQUENCES, PHYSICAL OR ENVIRONMENTAL CONDITION, ABSENCE OF LATENT DEFECTS, OFERATING HISTORY OR PROJECTIONS, VALUATION, GOVERNMENTAL APPROVALS, OCYPENMENTAL REGULATIONS OR ANY OTHER MATTER OR THING RELATING TO OR AFFECTING THE PROPERTY. EXCEPT AS EXPRESSLY PROVIDED IN THE DURCHASE AGREEMENT OR HEREIN, GRANTEE AGREES THAT WITH RESPECT TO THE PROPERTY, GRANTEE HAS NOT RELIED UPON AND WILL NOT RELY UPON, EITHER DIRECTLY OR INDIRECTLY, ANY WARRANTY REPRESENTATION OF GRANTOR OR GRANTOR'S REPRESENTATIVES. -GRANTEE-WILL CONDUCT SUCH INSPECTIONS AND INVESTIGATIONS OF THE PROPERTY, INCLUDING, BUT NOT LIMITED TO, THE PHYSICAL AND ENVIRONMENTAL CONDITIONS THEREOF, AND RELY UPON SAME, AND, UPON RESEIPT OF THIS DEED, SHALL ASSUME THE RISK THAT ADVERSE MAXTERS, INCLUDING BOT NOT LIMITED TO, LATENT DEFECTS AND ADVERSE PRYSICAL AND ENVIRONMENTAL CONDITIONS, MAY NOT HAVE BEEN REVEALED BY GRANTEE'S INSPECTIONS AND INVESTIGATIONS. EXCEPT AS EXPRESSLY PROVIDED HEREIM, GRANTEE AGREES TO TAKE WHATEVER ACTION AND PERFORM WHATEVER INVESTIGATIONS AND STUDIES GRANTEE DEEMS NECESSARY TO SATISFY ITSELF AS TO THE CONDITION OF THE PROPERTY AND THE EXISTENCE OR NONEXISTENCE OF, OR CURATIVE ACTION TO BE TAKEN WITH RESPECT TO, ANY HAZARDOUS AND/OR TOXIC SUBSTANCES ON OR DISCHARGED FROM THE PROPERTY. GRANTEE ACKNOWLEDGES AND AGREES THAT UPON RECEIPT OF THIS DEED, GRANTEE SHALL ACCEPT THE PROPERTY "AS IS, WHERE IS", WITH ALL FAULTS AND THERE ARE NO ORAL OR WRITTEN AGREEMENTS, WARRANTIES OR REPRESENTATIONS, COLLATERAL TO OR AFFECTING THE PROPERTY BY GRANTOR OR ANY THIRD PARTY, EXCEPT AS OTHERWISE

PROVIDED IN THE PURCHASE AGREEMENT. FURTHER, GRANTEE HEREBY ACKNOWLEDGES TO GRANTOR THAT GRANTEE AND GRANTOR ARE NOT IN A SIGNIFICANTLY DISPARATE BARGAINING POSITION.

[Signature Page to Follow]



EXECUTED effective as of the 26th day of January. 2024.

### **GRANTOR:**

E REAL ESTATE LP, a Texas limited partnership

Eland Energy, Inc., a Texas corporation, By:

General Partner

By:

STATE OF TEXAS

**COUNTY OF DALLAS** 

This instrument was acknowledged before

anuary, 2024, by Gregg Jeneral Partner of E Real Estate LP,

Allen, President of Eland Energy, Inc., a Texas corporation, General Texas limited partnership, on behalf of said limited partnership.

LORETTA BOOD Notary Public State of T ID # 6470 66 Comm. Expires 07/27/20

CENTRAL FRISCO, LTD., a Texas limited partnership

By: ALR General LC, a Texas limited liability company, general partner

By: Eland Energy, Inc., corporation, Manager

Texas

n...

By:

STATE OF TEXAS

8888

**COUNTY OF DALLAS** 

This instrument was acknowledged before the on the day of January, 2024, by Gregg Allen, President of Eland Energy, Inc., a Texas of poration, Manager of Alle General LC, a Texas limited liability company, General Partner of Central Pisco, Ltd. a Texas limited partnership, on

behalf of said limited partnership.

Votary Public, State of Texa

Exhibits to Deed:

Exhibit A - Property Description

Exhibit B - Permitted Exceptions

LORETTA BODDY
Notary Public
State of Texas
ID # 6470366
Comm. Expires 07/27/2024

## Exhibit A Property Description

### TRACT A

### PARCEL 1 (Fee Simple):

BEING a tract of land situated in the W.H. Herron Survey, Abstract No. 380, M. Herron Survey, Abstract No. 415 and the G. Joy Survey, Abstract No. 488, City of Celina, Collin County, Texas, and being all of a called 450.71 acres conveyed to Central Frisco, LTD as recorded in County Clerk's No. 20080306000268700, Official Public Records of Collin County, Texas, (O.P.R.C.C.T.) and being more particularly described by metes and bounds as follows:

BEGINNING at a 1/2" iron rod found for the southwest corner of said 450.7 agree tract, said fron rod also being the southeast corner of Lot 4, Block D, Morgan Lake Estates Phase One as recorded in Volume 1, Page 591, Plat Records of Collin County, Texas, said iron rod being in County Road No. 96;

THENCE N 00°03'11" E following the east line of said Morgan Lake Estates a distance of 461.22' to a fence post at the southeast corner of Ridgeview;

THENCE N 07°08'39" E a distance of 60.21 to 172 iron rod found for corner at the northeast corner of Ridgeview, said iron rod being at the beginning of a non-tangent curve to the left;

THENCE along said non-Tangent curve to the left following the east line of said Morgan Lake Estates through a central angle of 06°21'24", with a radius of 270.00', and an arc length of 29.96', with a chord bearing of S 86°04'26" E, and a chord length of 29.94' to 1/2" iron rod with yellow plastic cap stamped "4613" found for corner,

THENCE S 89°02'34" E following the east line of said Morgan Lake Estates a distance of 222.34' to a capped iron rod found for corner;

THENCE NO 00'84 H following the east line of said Morgan Lake Estates a distance of 107.20' to 1/2" iron rod with yellow plastic oap stamped "4613" found for corner;

THENCE N 51 42'32' E following the east line of said Morgan Lake Estates a distance of 398.05' to a capped iron rod stamped "Burns" found for corner; THENCE N 49°38'50" E following the east line of said Morgan Lake Estates a distance of 210.56' to 1/2" iron rod with yellow plastic cap stamped 4613" found for corner;

THENCE N 36°54'06" W following the east line of said Morgan Lake Estates a distance of 462.25' to a capped iron rod found for corner;

THENCE N 15°17'57" W following the east line of said Morgan Lake Estates a distance of 60.26' to fence post at the beginning of a non-tangent curve to the right;

THENCE along said non-Tangent curve to the right following the east line of said Morgan Lake Estates through a central angle of 07°25'01", with a radius of 530.00', and an arc length of 68.61', with a chord bearing of N 78°46'37" E, and a chord length of 68.56' to a 5/8" iron rod found for corner;

THENCE N 82°26'44" E following the east line of said Morgan Lake Estates a distance of 62.14' to 1/2" iron rod with yellow plastic cap stamped "4613" found for corner;

THENCE N 38°02'49" W following the east line of said Morgan Lake Estates passing a 196.17' a 1/2" iron pipe found for the east corner of Lot 16, Block C of the replat of Lots 12 thru 15, Block C, Morgan Lake Estates, Phase One and the south corner of Lot 15R, Block C, as recorded in Volume J, Page 814, Plat Records of Collin County, Texas, continuing along said replate distance of 615.74' to 1/2" iron rod found for corner;

THENCE N 25°29'51" W following said replat a distance of 423.56' to 1/3" iron rod with yellow plastic cap stamped "4613" found for corner in the east line of Lot 10, Block C of said Morgan Lake Estates Phase One;

THENCE N 11°11'37" E following the east line of said Morgan Lake Estates a distance of 219.89' to 1/2" iron rod with yellow plastic cap stamped 10°13' found for corner:

THENCE N 49°12'29" W following the east line of said Margan Lake Estates a distance of 934.00' to a point for corner;

THENCE N 45°38'35" W following the east line of said Morgan Lake Estates a distance of 346.17' to a point for corner;

THENCE N 84°06'22" W following the east line of said Morgan Lake Estates a distance of 374.78' to a point for corner in the east line of a called 15.071 acre tract conveyed to SMR Family LP as recorded in County Clerk's No. 20090526000637370, O.P.R.C.C.T.;

THENCE N 01°51'31 If following the east line of said 15.071 acre tract a distance of 132.73' to a point for corner at the northeast corner of said 15.071 acres tract, said corner being the southeast corner of a called 16.369 acre tract conveyed to Pyramid Project Consulting, LLC as recorded in County Clerk's No. 20180227000241370, O.P.R.C.C.T.;

THENCE N 00°51'15" W following the east line of said called 16.369 acre tract a distance of 1184.16 to a fence post found for corner at an ell corner of said 16.369 acre tract;

THENCE N 87°19'02" W following the east line of said called 16.369 acre tract a distance of 50.98' to a fence post found for corner at an ell corner of said 16.369 acre tract;

THENCE N 00°50'39" W following the east line of said called 16.369 acre tract passing at 212.35' the northeast corner of said called 16.369 acre tract, same being the southeast corner of a tract conveyed to Marvin & Renetta Wilson as recorded in County Clerk's No. 92-0004376,

O.P.R.C.C.T. and continuing in all a distance of 489.62' to fence post found for corner at the northeast corner of said Wilson tract;

THENCE S 89°48'31" W following the north line of said Wilson tract a distance of 341.92' to a 1/2" iron rod found for corner in the east Right Of Way line of State Highway No. 289/Preston Road a variable width ROW;

THENCE N 00°16'21" E following the east Right Of Way line of State Highway No. 889/Preston Road a distance of 51.94' to 1/2" iron rod found for corner at the southwest corner of a called 50.487 acre tract conveyed to Preston Acreage LP and Spartan Texas Six Celina, LTD. as recorded in Volume 5239, Page 1060, O.P.R.C.C.T.;

THENCE S 89°51'39" E following the south line of said called 50.467 acres a distance of 302.06' to a 1/2" iron rod with yellow plastic cap stamped "4613" found for corner;

THENCE N 89°54'07" E following the south line of said called 50.487 acres a distance of 593.47' to a 1/2" iron rod with yellow plastic cap stamped "4613" found for corner at the southeast corner of said 50.487 acres;

THENCE N 00°32'56" E following the east line of said called 50.487 acre a distance of 2607.15' to a mag nail found for corner in County Road No. 700, said nail being at the southwest corner of a called 32.2726 acre tract conveyed to Mars Preston High, LLC as recorded in County Clerks No. 2022000077988, O.P.R.C.C.T.;

THENCE N 88°52'27" E following County Road No. 100 and the south line of said called 32.2726 acres a distance of 1066.99' to a mag nail found for corner in County Road No. 100, said nail being the southeast corner of said 32.2726 acre tract, said nail also being at the southwest corner of Buffalo Ridge Phase Three as recorded in Volume 2020, Page 670, Plat Records of Collin County, Texas;

THENCE N 88°40'14'/E following the couth line of said Buffalo Ridge Phase Three and the south line of Buffalo Ridge Phase Two as recorded in Volume 2018, Page 864, Plat Records of Collin County, Texas a distance of 1587.28' to a mag nail found for corner at the intersection of County Road No. 100 and County Road No. 97, said nail being in the west line of D.C. Ranch Phase One as recorded in Volume 2007, Page 189, Plat Records of Collin County, Texas;

THENCE S 00°26'19" W following County Road No. 97, following the west line of said D.C. Ranch Phase One, following the west line of Sharrock Addition as recorded in Volume 2018, Page 80, Plat Records of Collin County, Texas, a distance of 780.68' to a railroad spike found for corner at the southwest corner of said 15.000 acre tract, said railroad spike also being in County Road 97, said railroad spike also being the northwest corner of a called 40.00 acre tract conveyed to NTEX Financial, LLC as recorded in County Clerk's No. 20220304000362990, O.P.R.C.C.T.;

THENCE S 00°04'53" W following County Road No. 97 and the west line of said 40.00 acres a distance of 1861.66' to a mag nail found for corner at the intersection of County Road 97 and

County Road No. 101, said nail being N 00°38' E a distance of 4.60' from a railroad spike found for corner for the southwest corner of said 40.00 acre tract;

THENCE S 00°09'59" E following County Road No. 97 a distance of 1566.24' to a capped iron rod found for corner;

THENCE S 00°31'39" E following County Road No. 97 a distance of 3747.56' to a capped iron rod stamped "894" found for corner;

THENCE N 89°54'15" W passing 65' the "T" intersection of County Road No. 97 and County Road No. 96 and continuing with County Road No. 96 a distance of 2005.13' to the POINT OF BEGINNING and containing 19,634,318 Square Feet or 450.742 Acres of land.

### PARCEL 2 (Easement):

That certain easement for ingress and egress as set out at Item 2 under Exhibit O of Deed from Morgan Lake Estates, Ltd. to Howard H. Chen, Trustee, dated 02/29/1998, Fled 02/24/1998, recorded in Volume 4108, Page 1797, Real Property, Records, Collin County, Texas.

### TRACT B

BEING a tract of land situated in the M. Helvon Survey, Abstract No. 415, Collin County, Texas, and being all of a called 43.77 acres and being part of a called 272.545 acres conveyed to E Real Estate, LLC as recorded in County Clerk's No. 20200515000713140, Official Public Records of Collin County, Texas (O.P.R.C.C.T.), and being more particularly described by metes and bounds as follows:

BEGINNING at a 1/2" iron rod found for the southeast corner of a said called 272.545 acre tract, said iron rod being in County Read No. 101;

THENCE S 89°58'51" W following the south line of said 272.545 acre tract of land a distance of 2681.08' to 21/2" it or rod found for the southwest corner of said 272.545 acre tract of land, said iron rod being at the southeast corner of a called 450.71 acre tract of land conveyed to Central Frisco, LTD as recorded in County Clerk's No. 20080306000268700, O.P.R.C.C.T.;

THENCE N 00°31'39" W passing a bend in County Road No. 97 at a distance of 135.42' and continuing with County Road No. 97 a total distance of 3747.56' to a capped iron rod found for corner;

THENCE N 00°09'59" W following County Road No. 97 a distance of 1566.24' to a mag nail found for corner at the intersection of County Road 97 and County Road No. 101, said nail being N 00°38' E a distance of 4.60' from a railroad spike found for corner for the southwest corner of a called 40.000 acre tract of land;

THENCE N 89°29'02" E following County Road No. 101 a distance of 800.44' to a mag nail found for corner at the northwest corner of a called 7.498 acre tract of land conveyed to Tom Harper as recorded in County Clerk's No. 93-0036670, O.P.R.C.C.T.;

THENCE S 00°13'53" E following the west line of said 7.498 acre tract of land a distance of 541.40' to a 1/2" iron rod found for corner at the southwest corner of said 7.498 acre tract of land;

THENCE N 89°33'29" E following the west line of said 7.498 acre tract of land a distance of 630.36' to a 1/2" iron rod with yellow plastic cap stamped "4613" found for corner at the southeast corner of said 7.498 acre tract of land;

THENCE N 00°23'54" W following the east line of said 7.498 acre tract of land a distance of 114.13' to a 1/2" iron rod with yellow plastic cap stamped "4613" found for dorner in the south line of a called 2.661 acre tract of land conveyed to Collin County as recorded in Volume 3309, Page 7316, Deed Records of Collin County, Texas (D.R.C.C.T.);

THENCE S 60°13'43" E following the south line of said called 2.661 acre tract of land a distance of 230.59' to a 1/2" iron rod with yellow plastic cap stamped '4613" found for somer;

THENCE N 88°41'33" E following the south fine of said 2.661 asre tract of land a distance of 10.17' to a 1/2" iron rod with yellow plastic cap starting 1"4013" found for corner at the southeast corner of said called 2.661 acre tract;

THENCE N 00°29'31" W following the east line of said called 2.661 acre tract a distance of 139.20' to a 1/2" iron rod with yellow plastic cap stamped "4613" found for corner by a steel fence post;

THENCE S 89°54'44" E following a fence a distance of 307.00' to a steel fence post for corner;

THENCE N 00°00'30" W following the fence a distance of 404.42' to a mag nail found in County Road No. 101;

THENCE N 89 22'01" E following County Road No. 101 a distance of 710.22' to a 1/2" iron rod with yellow plastic cap stamped "4613" found for corner at a ell in County Road No. 101;

THENCE S 00°15°26" E following County Road No. 101 a distance of 1366.59' to a 1/2" iron rod found for the northwest corner of a called 10.696 acre tract of land conveyed to John and Linda Dove as recorded in County Clerks No. 201711290015, O.P.R.C.C.T.;

THENCE S 01°30'21" E following County Road No. 101 and the west line of said 10.696 acre tract of land a distance of 591.64' to 1/2" iron rod found the southwest corner of said 10.696 acre tract of land, said iron rod being the northwest corner of a called 154.059 acre tract of land conveyed to E Real Estate LLC as recorded in Volume 20200515000713140, O.P.R.C.C.T.;

THENCE S 00°45'43" E following County Road No. 101 and the west line of said 154.059 acre tract of land a distance of 2220.96' to a mag nail found for corner at the northwest corner of a

called 4.000 acre tract of land conveyed to E Real Estate LLC as recorded in Volume 2010701001338570, O.P.R.C.C.T.;

THENCE S 00°31'05" E following County Road No. 101 and the west line of said 4.000 acre tract of land a distance of 417.63' to a 1/2" iron rod found for corner, said iron rod being at the southwest corner of said 4.000 acre tract of land and also being at the northwest corner of a called 12.486 acre tract of land conveyed to E Real Estate LLC as recorded in Volume 20200212000196540, O.P.R.C.C.T.;

THENCE S 00°31'26" E following County Road No. 101 and also following the said called 2.486 acre tract of land a distance of 737.91' to the POINT OF BEGINNING and containing 13.658,657 Square Feet or 313.560 Acres of land.

### TRACT C

### PARCEL 1

BEING a tract of land situated in the Benjamin Haile Survey, Abstract No. 397, Mary Howell Survey, Abstract No. 396, Daniel Howell Survey, Abstract No. 394, Isaac Walker Survey, Abstract No. 1056 of Collin County, Texas, being all of a sale of 167.027 acceptacy of land conveyed to E Real Estate LLC as recorded in County Clerk No. 20200212000196506 Official Public Records of Collin County, Texas (O.P.R.C.C.T.), Jengall of Tract 1, a called 78.613 acre tract of land, "Tract 2," a called 66.676 acre tract of land, "Tract 4," a called 0.937 acre tract of land, and "Tract 5," a called 18.748 acre tract of land, all conveyed to E Real Estate LLC as recorded in County Clerk No. 20200212000196540, O.P.R.CCT., being all of a called 62.434 acre tract of land, save and except 5.02 acres of land, conveyed to E Real Estate LLC as recorded in County Clerk No. 20200428000610240, O.P.R.C.C.A., being all of a 5,02 acre tract of land conveyed to Mindy L. Koehne, Greg Allen, Doug Smith, Derek Smith, and Van D. Nichols as recorded in County Clerk No. 2023000067911, O.P.R.C.C.T, being all of a called 154.059 acre tract of land conveyed to E Real Estate LLC as recorded in County Clerk No. 20200515000713140, O.P.R.C.C.T., being all of a called 2.50 acre tract of land conveyed to E Real Estate LLC County as recorded in Clerk No. 20200515000713140, OP.R.C.T. being all of a called 6.000 acre tract of land conveyed to Central Frisco, LTD: as recorded in County Clerk No. 20200515000713140, O.P.R.C.C.T., and being more particularly described in metes and bounds as follows;

BEGINNING in the intersection of County Road 130 and County Road 101 at a 1/2" iron rod found for the northwest corner of the called 154.09 acre tract of land and said iron rod found being the southwest corner of a called 10.695 acre tract of land conveyed to John and wife, Linda Dove as recorded in County Clerk No. 201711290015 O.P.R.C.C.T.;

THENCE N 89°25'21" E along County Road 130 a distance of 4548.58' to a 1/2" iron rod found for the northeast corner of the called 62.434 acre tract of land;

THENCE S 00°36'55" E a distance of 714.20' to a 1/2" iron rod with yellow plastic cap stamped "4613" found for corner:

THENCE N 89°28'23" E a distance of 728.73' to a 1/2" iron rod with yellow plastic cap stamped "4613" found for corner in the west line of County Road 128;

THENCE S 02°00'50" E with the west line of County Road 128 a distance of 609.49' to a Mag Nail with shiner stamped "4613" found at the southeast corner of the called 64.434 acre tract of land on the west edge of County Road 128;

THENCE S 89°13'21" W a distance of 31.81' to a 1/2" iron rod with yellow plastic cap stamped "4613" found for corner at the northeast corner of the called 167.027 acre tract of land, and said iron rod also being the point of commencing for the 31.621 acre save and except tract of land described below;

THENCE S 00°39'20" E entering County Road 128 at distance of 1021' and continuing along the along the centerline until departing County Road 128 at distance of 2026 42 and continuing for a total distance of 2101.00' to a 1/2" iron rod found for corner at the southwest colorer of High Point Estates, an addition to the City of Celina as recorded in Volume M. Page N6, Plat Records of Collin County, Texas;

THENCE N 89°18'00" E a distance of 333.00' to 112" iron rod with yellow plastic cap stamped "4613" found for corner;

THENCE S 00°32'37" E a distance of 15.76 to a 12" iron rod with yellow plastic cap stamped "4613" found for corner in the north Right-of-Way (ROW) line of Farm to Market Road 455 (F.M. 455), with said corner being at the beginning of a non-tangent curve to the left;

THENCE along the north ROW of E.W. 455 the following (10) ten calls:

THENCE with said non-tangent curve to the left with a central angle of 29°18'20", with a radius of 363.31', with an arc length of 185.82', with a chord bearing of S 14°53'59" W, with a chord length of 183.81', to a 1/2" iron rod with yellow plastic cap stamped "4613" found for corner;

THENCE S.00°14' 19" W a distance of 606.04' to a 1/2" iron rod with yellow plastic cap stamped "4613" found for corner at the beginning of a curve to the right;

THENCE with said curve to the right with a central angle of 88°04'00", with a radius of 273.31', with an arc length of 420.09', with a chord bearing of S 44°16'49" W, with a chord length of 379.94', to a 1/2" iron rod with yellow plastic cap stamped "4613" found for corner;

THENCE \$88°18'49" W a distance of 1138.48' to a 1/2" iron rod with yellow plastic cap stamped "4613" found for corner;

THENCE S 88°36'49" W a distance of 1157.63' to a 1/2" iron rod with yellow plastic cap stamped "4613" found for corner at the beginning of a curve to the left;

THENCE with said curve to the left with a central angle of 69°52'00", with a radius of 363.31', with an arc length of 443.02', with a chord bearing of S 53°40'49" W, with a chord length of 416.08' to a 1/2" iron rod with yellow plastic cap stamped "4613" found for corner;

THENCE S 18°44'49" W a distance of 179.53' to a 1/2" iron rod with yellow plastic cap stamped "4613" found for corner at the beginning of a curve to the right;

THENCE with said curve to the right with a central angle of 70°56'00", with a radius of 273.31', with an arc length of 338.36', with a chord bearing of S 54°12'49" W, with a chord length of 317.16' to a 1/2" iron rod with yellow plastic cap stamped "4613" found for corner;

THENCE S 89°40'49" W a distance of 2001.03' to a 1/2" iron rod with yellow plastic car stamped "4613" found for corner at the beginning of a curve to the left;

THENCE with said curve to the left with a central angle of 24°30'21', with a fadius of 363.31', with an arc length of 155.39', with a chord bearing of S 77°25'39" W with a chord length of 154.21', to a 1/2" iron rod with yellow plastic cap stamped "4613" found for coher;

THENCE N 89°36'44" W departing the the north ROW of 1.M 455 for a distance of 141.03' to a 1/2" iron rod with yellow plastic cap stamped 13" found for corner at the southwest corner of the called 78.613 acre tract of land in the east side of CR 101;

THENCE N 00°21'09" W with the east side of CR 101 a distance of 2644.48' to a 1/2" iron rod with yellow plastic cap stamped "4613" found for somer at the northwest corner of the called 18.748 acre tract of land and said capped iron rod being set in the south line of a called 4.000 acre tract of land conveyed to E Real Estate as recorded in County Clerk No. 20210701001338570, O.P.R.C.C.T.;

THENCE N 89°30'37" E a distance of 387 43' to a 1/2" iron rod with yellow plastic cap stamped "4613" found for corner at the southeast corner of the called 4.000 acre tract of land;

THENCE N.00°58'24° V a distance of 417.42' to a 1/2" iron rod with yellow plastic cap stamped "4613" found for corner at the northeast corner of the called 4.000 acre tract of land;

THENCE S 89 34'55" We distance of 414.57' to a Mag Nail with shiner stamped "4613" found for the northwest cornel of the called 4.000 acre tract of land in the centerline of CR 101;

THENCE N 60°44' 58" W with the centerline of CR 101 for a distance of 2220.69' the POINT OF BEGINNING, and containing 25,649,480 Square Feet or 588.831 Acres.

<u>SAVE AND EXCEPT</u> a 31.620 acre tract of land conveyed to Rea Family Living Trust as recorded in County Clerk No. 20190814000983790, O.P.R.C.C.T.

<u>SAVE AND EXCEPT</u> a 5.02 acre tract of land conveyed to Mindy L. Koehne, Trustee, as recorded in County Clerk No. 20190909001106320, O.P.R.C.C.T.

#### PARCEL 2

BEING a tract of land situated in the Daniel Howell Survey, Abstract No. 394, of Collin County, Texas, being all of "Tract 3," a called 59.916 acre tract of land conveyed to E Real Estate LLC as recorded in County Clerk No. 20200212000196540, Official Public Records of Collin County, Texas, and being more particularly described in metes and bounds as follows;

BEGINNING in the south Right-of-Way (ROW) of Farm to Market Road 455 (F.M. 455) at a 1/2" iron rod with yellow plastic cap stamped "4613" found for northern most northwest corner of the called 59.916 acre tract of land;

THENCE N 89°40'49" E with the south ROW of F.M. 455 a distance of 2324.51' to 212" iron rod with yellow plastic cap stamped "4613" found at the northeast corner of inecalled 59.916 acre tract of land;

THENCE S 00°05'46" E a distance of 953.17' to a 1/2" iron rod with yellow plastic cap stamped "4613" found at the southeast corner of the called 59.916 acre tract of land;

THENCE S 89°41'29" W a distance of 2639.07' to a 1/2" iron rod found for the southeast corner of the called 59.916 acre tract of land;

THENCE N 00°29'39" E a distance of 40445, to 21/2 iron rod found for corner in the south ROW of F.M. 455 at the beginning of a horizontal curve to the left;

THENCE with the south ROW of F.M. 455 and along said ourve to the left with a central angle of 28°05'28", with a radius of 363.31', with an arc length of 178.12', with a chord bearing of N 12°58'33" E, with a chord length of 176.35 to a 1/2" iron rod with yellow plastic cap stamped "4613" found for corner;

THENCE N 01°04'11" W with the south RDW of F.M. 455 a distance of 99.75' to a 1/2" iron rod found for corner at the beginning of a curve to the right;

THENCE with said curve to the right with a central angle of 90°45'00", with a radius of 273.31', with an arc length of 432.89', with a chord bearing of N 44°18'19" E, with a chord length of 389.04', to the POINT OF DEGINNING, and containing 2,476,629 Square Feet or 56.856 Acres of land.

### Exhibit B Permitted Exceptions

1. Rights, if any, of third parties with respect to any portion of the subject property lying within the boundaries of a public or private road, to-wit:

Tract A - CR 96, CR 97, CR 100 and SH 289/Preston Road; Tract B - CR 101; and Tract C, Parcel 1 - CR 128.

- Easement granted by Morris Morgan and Callie Morgan to County Soil Conservation District, dated 05/10/1965, filed 07/19/1965, recorded in Volume 656, Page 453, Real Property Records, Collin County, Texas, and as affected by Supplemental Easement, dated 10/30/1968, filed 04/24/1969, recorded in Volume 731, Page 497, Real Property Records, Collin County, Texas.
- 3. Easement granted by Morris Morgan and wife, Callie Morgan to Gunter Water Supply Corporation, filed 04/14/1972, recorded in Volume 817, Page 430, Real Property Records, Collin County, Texas. Partial Release and Definition of Area Embraced Within Easement filed 09/13/1994, recorded in cc# 94-0084387, Real Property Records, Collin County, Texas.
- Easement granted by Morris Morgan and wife, Callie Morgan to Gunter Water Supply Corporation, dated 11/03/1971, filed 0 114/1972, recorded in Volume 817, Page 372, Real Property Records, Collin County, Texas.
- 5. Non-participating royalty interest in coal, lignite, oil, gas and other minerals, and all rights incident thereto, described in instrument filed 08/04/1956, recorded in Volume 520, Page 649, Real Property Records Collin County, Texas. Company makes no representation as to the present ownership of any sucil interests.
- 6. Easement granted by Morgan Lake Estates, Ltd. to Howard H. Chen, Trustee, dated 02/19/1998 filed 02/24/1998, recorded in Volume 4108, Page 1797, Real Property Records, Collin County, Texas.
- 7. Easement granted by Kirk's Rockin K Ranch and Land Company, Inc. to the City of Celina, dated 08/28/2000, filed 09/14/2000, recorded in Volume 4752, Page 1052, Real Property Records, Collin County, Texas.
- Easement granted by Vance W. Stallcup to the County of Collin, dated 08/29/2005, filed 09/06/2000, recorded in Volume 4752, Page 1016, Real Property Records, Collin County, Texas.
- Easement granted by Vance W. Stallcup and Alice N. Stallcup to Collin County Soil Conservation District, dated 05/18/1965, filed 07/09/1965, recorded in Volume 656, Page 478, Real Property Records, Collin County, Texas.

- Easement granted by Central Frisco, Ltd. to the City of Celina, filed 12/08/2021, recorded in cc# 20211208002484640, Real Property Records, Collin County, Texas.
- Terms, provisions, conditions, and obligations contained in Agreement Regarding Eland Farms, filed 05/23/2017, recorded in cc# 20170523000658090, Real Property Records, Collin County, Texas.
- 12. Easements and rights of third parties, if any, relative to electric meters, water valves, power poles, telephone boxes, wells, light poles and SCS Lake extends across Westerly property line.
- 13. Sanitation easement contained in Deed filed 12/31/1985, recorded in Volume 2881, Page 380, Real Property Records, Collin County, Texas.
- 14. Mineral estate and interest, and all rights incident thereto described in Deed filed 08/04/1956, recorded in Volume 520, Page 649, Real Property Records, Collin County, Texas. Company makes no representation as to the present ownership of any said interest.
- 15. Easement granted by Early B. Milstead and wife, Lena Milstead to Grayson-Collin Electric Cooperative, Inc., filed 07/26/1968, recorded in Volume 714, Page 50, Real Property Records, Collin County, Texas. As affected by Revision of Right of Way Easement filed 06/24/1974, recorded in Volume 913, Page 103, Real Property Records, Collin County, Texas.
- 16. Easement granted by John Toole to Grayson Codin Electric Cooperative, Inc., filed 07/02/1984, recorded in Volume 1927, Page 711, Real Property Records, Collin County, Texas.
- 17. Easement granted by Jesse Kirk to Gunter Rural Water Supply Corporation, filed 03/20/1996, recorded to co# 96-00227/14, Real Property Records, Collin County, Texas.
- 18. Easement granted by Richard W. Newell to Gunter Rural Water Supply Corporation, filed 03/20/1996, recorded in complete 6-0022775, Real Property Records, Collin County, Texas.
- 19. Easement granted by Jessie and Milo Kirk to Grayson Collin Electric Cooperative, Inc., filed 04/11/1995, recorded in cc# 96-0029636, Real Property Records, Collin County, Texas.
- 20. Easement granted by Jesse Kirk to the County of Collin, filed 09/14/2000, recorded in Volume 4752, Page 1032, Real Property Records, Collin County, Texas.
- Easement granted by Kirk's Rockin K Ranch and Land Company, Inc., to the County of Collin, filed 09/14/2000, recorded in Volume 4752, Page 1036, Real Property Records, Collin County, Texas.

- 22. Easement granted by Jesse T. Kirk to the County of Collin, filed 09/14/2000, recorded in Volume 4752, Page 1040, Real Property Records, Collin County, Texas.
- 23. Easement granted by Jesse T. Kirk to the County of Collin, filed 09/14/2000, recorded in Volume 4752, Page 1044, Real Property Records, Collin County, Texas.
- 24. Easement granted by Jesse T. Kirk to the County of Collin, filed 09/14/2000, recorded in Volume 4752, Page 1048, Real Property Records, Collin County, Texas.
- Affidavit to the Public executed by Jesse Kirk and Milo Kirk for On-Site Waste Water System, filed 04/26/1999, recorded in Volume 4402, Page 1192, Real Property Records, Collin County, Texas.
- 26. Mineral estate and interest, and all rights incident thereto, described in Wineral Deed filed 09/03/1936, recorded in Volume 308, Page 69, Real Property Records, Colin County, Texas. Company makes no representation as to the present ownership of any said interest.
- 27. Mineral estate and interest, and all rights incident thereto, described in instrument filed 09/11/1980, recorded in Volume 1301, Page 492, Real Property Records, Collin County, Texas. Company makes no representation as to the present ownership of any said interest.
- 28. Mineral estate and interest, and all rights incident thereto, described in instrument filed 09/28/1982, recorded in Volume 1567, Page 868, Real Property Records, Collin County, Texas. Company makes no representation as to the present ownership of any said interest.
- 29. Mineral estate and interest, and all rights incident thereto, described in Warranty Deed filed 09/02/1983, recorded in Volume 1727, Page 268, Real Property Records, Collin County, Texas. Company makes no representation as to the present ownership of any said interest.
- Easement granted by Kirks Rocking & Ranch and Land Company, Inc. to Grayson Collin Electric Cooperative, Inc., filed 97/22/2015, recorded in cc# 20150722000903270, Real Property Records Collin County, Texas.
- 31. Easement granted by Jesse T. Kirk and wife, Milo M. Kirk to Grayson Collin Electric Cooperative, Inc., filed 07/22/2015, recorded in cc# 20150722000903280, Real Property Records, Collin County, Texas.
- 32. Affidavit to the Public executed by KIRK'S ROCKIN K RANCH for On-Site Waste Water System, filed 09/23/2015, recorded in cc# 20150923001207580, Real Property Records, Collin County, Texas.
- 33. Easement granted by J. M. Shelton to Texas Power & Light Company, filed 12/21/1954, recorded in Volume 493, Page 260, Real Property Records, Collin County, Texas. As affected by Easement Modification and Supplement filed 12/12/2013, recorded in cc# 20131212001637570, Real Property Records, Collin County, Texas.

- 34. Mineral estate and interest, and all rights incident thereto, described in Warranty Deed with Vendor's Lien filed 08/29/1997, recorded in Volume 3987, Page 1644, Real Property Records, Collin County, Texas. Company makes no representation as to the present ownership of any said interest.
- 35. Mineral estate and interest, and all rights incident thereto, described in Special Warranty Deed filed 06/28/2007, recorded in cc# 20070628000887800, Real Property Records, Collin County, Texas. Company makes no representation as to the present ownership of any said interest.
- Easement granted by J.L. Klinglesmith et al to Texas Power and Light Company, Ned 12/21/1954, recorded in Volume 493, Page 270, Real Property Records, Collar County Texas.
- Easement granted by Estate of A.S. Klinglesmith to Texas Power and Light Company, filed 12/03/1959, recorded in Volume 559, Page 427, Real Property Records, Collin County, Texas.
- 38. Easement granted by Collin Irrevocable Trust to the County of Collin, filed 08/08/1996, recorded in cc# 96-67344, Real Property Records, Collin County, Texas.
- Easement granted by Vendetta Collins to Grayson Collin Electric Cooperative, Inc., filed 07/02/1984, recorded in Volume 1917, Page 515, Real Property Records, Collin County, Texas.
- 40. Easement granted by Ronnie E. Collins to Grayson Collin Electric Cooperative, Inc., filed 12/16/1979, recorded in Volume 1459, Page 272, Real Property Records, Collin County, Texas.
- 41. Terms, provisions, conditions and obligations contained in Indenture, filed 11/10/1967, recorded in Volume 699, Page 537 and refiled in Volume 1238, Page 640, Real Property Records, Collin County, Texas.
- 42. Easement granted by Roy E. Klinglesmith to the County of Collin, filed 08/08/1996, recorded in cc \$36-673.5, Real Property Records, Collin County, Texas.
- 43. Road Dedication to the Public by Martha Dean Thurmon as recorded in Volume 1103, Rage 19 and Volume 3305, Page 795, Real Property Records, Collin County, Texas.
- Easement granted by Martha Dean Thurmon to Grayson Collin Electric Cooperative, Inc., filed 11/29/1978, recorded in Volume 1145, Page 889, Real Property Records, Collin County, Texas.
- 45. Easement granted by Jesse Kirk and Milo Kirk to Grayson Collin Electric Cooperative, Inc., filed 04/18/2002, recorded in Volume 5150, Page 2659, Real Property Records, Collin County, Texas.

- 46. Affidavit to the Public executed by Jesse Kirk and Milo Kirk for On-Site Waste Water System, filed 09/18/2003, recorded in Volume 5505, Page 4706, Real Property Records, Collin County, Texas.
- 47. Mineral estate and interest, and all rights incident thereto, described in Deed filed 03/15/2007, recorded in cc# 20070315000356940, Real Property Records, Collin County, Texas. Company makes no representation as to the present ownership of any said interest.
- 48. Easement granted by Central Frisco, Ltd. to the County of Collin, filed 01/21/2014, recorded in cc# 20140121000057450, Real Property Records, Collin County, Texas.
- 49. Easement granted by James Ptasinski to Apollo Investments, Inc., filed 04/1×1983, recorded in Volume 1639, Page 434, Real Property Records of Collin County, Texas.
- 50. City of Celina Ordinance No. 2008-39, filed 12/08/2008, recorded in cc# 20081208001395980, Real Property Records, Collin County, Texas
- 51. City of Celina Ordinance No. 2016-39 filed 07/22/2016, recorded in cc# 20160722000940730, Real Property Records, Collin County, Texas.
- 52. Easement granted by E Real Estate LLC to Like Mind Strategy Group, filed 06/24/2022, recorded in 2022000099186, Real Property Records, Collin County, Texas.
- 53. Right-of-way easement recorded in cc# 20110831000926240, Real Property Records, Collin County, Texas.
- 54. Easement rights, if any, relative to the following matters:
  - Parcel 1 creek, ponds, wells, telephone boxes and gravel roads; and Parcel 2 fiber optic marker and power poles and associated lines.

### Collin County Honorable Stacey Kemp Collin County Clerk

Instrument Number: 2024000009322

eRecording - Real Property

DEED

Recorded On: January 26, 2024 12:44 PM

Number of Pages:

Record and Return To:

CSC

" Examined and Charged as Follows: "

Total Recording: \$97.00

\*\*\*\*\*\*\*\*\*\*\* THIS PAGE IS PART OF THE INSTRUMENT \*\*\*\*\*\*\*\*\*

Any provision herein which restricts the Sale, Rental or use of the described REAL PROPERTY color or race is invalid and unenforceable under federal law.

File Information:

Document Number:

2024000009332

20240 26000328

Receipt Number: Recorded Date/Time:

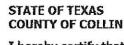
January 26, 2024 12:44 PM

User:

Kim D

Station:

Workstation cck024



I hereby certify that this Instrument was FILED In the File Number sequence on the date/time printed hereon, and was duly RECORDED in the Official Public Records of Collin County, Texas.

Honorable Stacey Kemp Collin County Clerk Collin County, TX



# ATTACHMENT E Groundwater Well Permit(s)

### Adams, Darby

From:

Adams, Darby

Sent:

Tuesday, February 4, 2025 11:04 AM

To:

Paul Sigle; Allen Burks

Cc:

Jason Flynt; Cowden, Patrick; Moore, Nick; Alderman, Nadia (Whitehouse); Ross, Casey

Subject:

RE: NTGCD Meeting - Collin County Site

### Paul and Allen,

Thank you both again for your time this morning! Below is a summary of our discussion. As stated, please let us know if we can provide anything additional at this time as we work through the actual GCD permit applications.

- Hillwood is developing property located north of Celina, along SH 289
- The property has 2 existing ponds that Hillwood intends to irrigate with and is actively applying for a Water Rights
   Permit on
  - o West Pond Well(s) will be built within the next year or so
  - East Pond Well(s) are approximately 8 years out from being needed
- Water Rights Permit application outlines groundwater to supplement pond losses
- NTGCD is familiar with this process and has worked through similar scenarios
  - West Pond process should be straightforward
  - East Pond will need additional consideration
    - Paul is going to regroup with the GCD attorney to discuss permit language and conditions as needed
- NTGCD recommends Hillwood account for the following in their well permit applications,
  - o Provide the phasing plan for the project site with each application, as applicable
  - Outline why groundwater is being used to supplement the ponds and the benefits of using it in this
    application
  - Clarify the ponds onsite, as related, are existing
  - These will be in addition to any requirements from the discussion with the GCD attorney

Please let me know if I missed any items or if there are any additional clarifications you would like to provide.

Thank you,

Darby Adams, EIT

Kimley-Horn | 4411 98th St., Suite 300, Lubbock, TX 79424

Direct: (806) 319-6235 | Mobile: (361) 688-5299

Celebrating 17 years as one of Fortune's 100 Best Companies to Work For

----Original Appointment----

From: Adams, Darby

Sent: Friday, January 31, 2025 1:14 PM

To: Adams, Darby; Moore, Nick; Ross, Casey; Alderman, Nadia (Whitehouse); Paul Sigle; Allen Burks

Cc: Jason Flynt; Cowden, Patrick

Subject: NTGCD Meeting - Collin County Site

When: Tuesday, February 4, 2025 10:00 AM-11:00 AM (UTC-06:00) Central Time (US & Canada).

Where: Microsoft Teams Meeting

Please forward this meeting invite to anyone else as needed.

### Microsoft Teams Need help?

## Join the meeting now

Meeting ID: 212 145 295 715

Passcode:

### Dial in by phone

+1 984-204-1608,,200535680# United States, Raleigh

Find a local number

Phone conference ID:

Join on a video conferencing device

More info

For organizers: Meeting options | Reset dial-in PIN

Enjoy your meeting!

Org help

## **Groundwater Well Permit(s)**

# TO BE PROVIDED IN FINAL APPLICATION



### Public Involvement Plan Form for Permit and Registration Applications

The Public Involvement Plan is intended to provide applicants and the agency with information about how public outreach will be accomplished for certain types of applications in certain geographical areas of the state. It is intended to apply to new activities; major changes at existing plants, facilities, and processes; and to activities which are likely to have significant interest from the public. This preliminary screening is designed to identify applications that will benefit from an initial assessment of the need for enhanced public outreach.

All applicable sections of this form should be completed and submitted with the permit or registration application. For instructions on how to complete this form, see TCEQ-20960-inst.

Section 1. Preliminary Screening				
New Permit or Registration Application				
New Activity - modification, registration, amendment, facility, etc. (see instructions)				
If neither of the above boxes are checked, completion of the form is not required and does not need to be submitted.				
Section 2. Secondary Screening				
Requires public notice,				
Considered to have significant public interest, <u>and</u>				
Located within any of the following geographical locations:				
<ul> <li>Austin</li> <li>Dallas</li> <li>Fort Worth</li> <li>Houston</li> <li>San Antonio</li> <li>West Texas</li> <li>Texas Panhandle</li> <li>Along the Texas/Mexico Border</li> <li>Other geographical locations should be decided on a case-by-case basis</li> </ul>				
If all the above boxes are not checked, a Public Involvement Plan is not necessary.  Stop after Section 2 and submit the form.				
Public Involvement Plan not applicable to this application. Provide brief explanation.				
A public involvement form is not applicable, as the project does not have significant public interest.				

Section 3. Application Information					
Type of Application (check all that apply):					
Air Initial Federal Amendment Standard Permit Title V					
Waste Municipal Solid Waste Industrial and Hazardous Waste Scrap Tire Radioactive Material Licensing Underground Injection Control					
Water Quality					
Texas Pollutant Discharge Elimination System (TPDES)					
Texas Land Application Permit (TLAP)					
State Only Concentrated Animal Feeding Operation (CAFO)					
Water Treatment Plant Residuals Disposal Permit					
Class B Biosolids Land Application Permit					
Domestic Septage Land Application Registration					
Water Rights New Permit					
New Appropriation of Water					
New or existing reservoir					
Amendment to an Existing Water Right					
Add a New Appropriation of Water					
Add a New or Existing Reservoir					
Major Amendment that could affect other water rights or the environment					
Section 4. Plain Language Summary					
Provide a brief description of planned activities.					
parties a size a secretary and in parties according to					

Section 5. Community and Demographic Information
Community information can be found using EPA's EJ Screen, U.S. Census Bureau information, or generally available demographic tools.
Information gathered in this section can assist with the determination of whether alternative language notice is necessary. Please provide the following information.
(City)
(County)
(Census Tract)
Please indicate which of these three is the level used for gathering the following information.
City County Census Tract
(a) Percent of people over 25 years of age who at least graduated from high school
(h) D
(b) Per capita income for population near the specified location
(c) Percent of minority population and percent of population by race within the specified location
(d) Percent of Linguistically Isolated Households by language within the specified location
(a) Languages gammanly analysis area by navgantage
(e) Languages commonly spoken in area by percentage
(f) Community and/or Stakeholder Groups
(g) Historic public interest or involvement



Section 6. Planned Public Outreach Activities					
(a) Is this application subject to the public participation requirements of Title 30 Texas Administrative Code (30 TAC) Chapter 39?					
Yes No					
(b) If yes, do you intend at this time to provide public outreach other than what is required by rule?					
Yes No					
If Yes, please describe.					
If you answered "yes" that this application is subject to 30 TAC Chapter 39, answering the remaining questions in Section 6 is not required.  (c) Will you provide notice of this application in alternative languages?  Yes No					
Please refer to Section 5. If more than 5% of the population potentially affected by your					
application is Limited English Proficient, then you are required to provide notice in the alternative language.					
If yes, how will you provide notice in alternative languages?					
Publish in alternative language newspaper					
Posted on Commissioner's Integrated Database Website					
Mailed by TCEQ's Office of the Chief Clerk					
Other (specify)					
(d) Is there an opportunity for some type of public meeting, including after notice?					
Yes No					
(e) If a public meeting is held, will a translator be provided if requested?					
Yes No					
(f) Hard copies of the application will be available at the following (check all that apply):					
TCEQ Regional Office TCEQ Central Office					
Public Place (specify)					
Section 7. Voluntary Submittal					
Section 7. Voluntary Submittal					
For applicants voluntarily providing this Public Involvement Plan, who are not subject to formal public participation requirements.					
Will you provide notice of this application, including notice in alternative languages?  Yes No					
What types of notice will be provided?					
Publish in alternative language newspaper					
Posted on Commissioner's Integrated Database Website					
Mailed by TCEQ's Office of the Chief Clerk					
Other (specify)					

# Irrigation and Evaporation Calculations

### **Groundwater and Irrigation Calculation Summary**

AND DESCRIPTION OF THE PERSONS	Tunet A/D	
	Tract A/B	
Tract A Phase 1	42896185	gal/yr
Tract A Phase 2	25504421	gal/yr
Tract B Phase 2	10563496	gal/yr
Tract B Phase 3	30668215	gal/yr
Evaportation	28805228.4	gal/yr
Total Water Demand:	138437545.4	gal/yr
Water Demand per Well:	69218772.7	gal/yr
Water Demand per Well:	212.4	ac-ft
Demand per Day	189640.5	gal/well/day
Pump Run Time	16	hrs
Pump Capcity	11852.5	gal/hr
Capacity per Pump	197.5	gpm
Capacity per Pump	0.44	cfs

Gr	oundwater Well Sizing	
	Tract B/C	
Tract B Phase 4	9305314	gal/yr
Tract C Phase 3	14652591	gal/yr
Tract C Phase 4	12149331	gal/yr
Tract C Phase 5	44385882	gal/yr
Tract C Phase 6	4416748	gal/yr
Evaportation	19942081.2	gal/yr
Total Water Demand:	104851947.2	gal/yr
Water Demand per Well:	52425973.6	gal/yr
Water Demand per Well:	160.9	ac-ft
Demand per Day	143632.8	gal/well/day
Pump Run Time	16	hrs
Pump Capcity	8977.1	gal/hr
Capacity per Pump	150	gpm
Capacity per Pump	0.33	cfs

Irrigat	ion System Sizing			
Tract A/B				
Tract A Phase 1	42896185	gal/yr		
Tract A Phase 2	25504421	gal/yr		
Tract B Phase 2	10563496	gal/yr		
Tract B Phase 3	30668215	gal/yr gal/yr gal/hr		
Total Irrigation Demand	109632317			
Irrigation Demand per Hour*	57100.17			
Irrigation Demand per Minute	951.67	gpm		
Irrigation Demand per Irrigation Point	476	gpm		

	Troot D/C		
	Tract B/C		
Tract B Phase 4	9305314	gal/yr	
Tract C Phase 3	14652591	gal/yr	
Tract C Phase 4	12149331	gal/yr	
Tract C Phase 5	44385882	gal/yr	
Tract C Phase 6	4416748	gal/yr	
Total Irrigation Demand	84909866	gal/yr	
Irrigation Demand per Hour*	44223.89	gal/hr	
Irrigation Demand per Minute	737.06	gpm	
Irrigation Demand per Irrigation Point	369	gpm	

Project Segment	Total Area	Turf	Shrubs & Groundcovers	Native Seed	Not Irrigated Area	Annual Irrigat Requirer	
	AC	AC	AC	AC	AC	Gallons	AcFt
Tract A Phase 1	44.26	17.73	2.68	12.32	11.53	42,896,185	131.6
Tract A Phase 2	21.54	14.53	2.50	2.56	1.95	25,504,421	77.3
Tract B Phase 2	12.09	5.46	1.18	2.20	3.26	10,563,496	32.4
Tract B Phase 3	31.09	11.67	2.12	10.90	6.40	30,668,215	94.1
Tract B Phase 4	8.89	6.45	1.43	0.00	1.01	9,305,314	28.6
Tract C Phase 3	25.91	8.06	1.54	4.13	12.18	14,652,591	45
Tract C Phase 4	15.76	7.13	1.16	0.98	6.49	12,149,331	37.3
Tract C Phase 5	49.20	20.20	3.70	11.82	13.48	44,835,882	137.6
Tract C Phase 6	5.67	3.37	0.41	0.61	1.27	4,416,748	13.6
Totals	214.41	94.60	16.73	45.51	57.56	194,992,183	597.5

General Site Data	
Net Irrigated Area (Acres):	156.85
Peak GPM Req'mt from irrigation pump:	1783
Peak GPM Req'mt from water wells:	820
Average GPM/Acre:	5.23

The irrigation water use calculations are based on typical industry standards for this region and historical data from similar projects.

Irrigation operations generally take place within a 8-10 hour watering period overnight while water wells will operate for longer durations.

Anticipated Irrigation Water Use Per Month			
Month	Gallons		
January	371,390		
February	804,819		
March	14,085,320		
April	17,249,348		
May	18,932,687		
June	26,705,411		
July	29,247,366		
August	32,182,880		
September	23,665,798		
October	18,249,348		
November	12,999,478		
December	498,338		
Totals	194,992,183		

Month	TWDB Evaporation - Max	Pond 1- West	Pond 2- East	Total
Month	(in.)	Surface A	Area (ac.)	(ac-ft)
		13.0	9.0	
		Evaporation V	/olume (ac-ft)	
January	4.30	4.66	3.23	7.88
February	5.29	5.73	3.97	9.70
March	5.65	6.12	4.24	10.36
April	6.32	6.85	4.74	11.59
May	6.59	7.14	4.94	12.08
June	8.95	9.70	6.71	16.41
July	10.47	11.34	7.85	19.20
August	11.14	12.07	8.36	20.42
September	8.82	9.56	6.62	16.17
October	6.00	6.50	4.50	11.00
November	4.32	4.68	3.24	7.92
December	3.75	4.06	2.81	6.88
Annual	81.60	88.40	61.20	149.60
Maximum	Annual Evaporation (ac-ft)		149.60	
Maximum A	Annual Evaporation (gallons)		48,747,310	
Maximum	Daily Evaporation (gallons)		133,554	
Maximur	n Daily Evaporation (gpm)		93	

			Total Are
Parcel	Parcel Area Description	Total Sq Ft	(Ac)
	Buffer	794,412	18.2
	Amenity Center	325,125	7.4
Tract A - Phase 1	The Greenway	490,266	11.2
	Attached Green	38,619	0.8
	Parks	279,362	6.4
	Parcel Totals	1,927,784	44.2
	Buffer	655,869	15.0
Tract A - Phase 2	Amenity Center	033,009	0.0
	The Greenway	0	0.0
	Attached Green	28,420	0.6
	Parks	254,121	5.8
	Parcel Totals	938,410	21.
	Buffer	267,846	6.:
	Amenity Center	207,840	0.0
Tract B - Phase 2	The Greenway	0	0.0
	Attached Green	0	0.0
	Parks	258,976	5.9
	Parcel Totals	526,822	12.
	Buffer	77.055	1.
	Amenity Center	77,955 304,920	7.
Tract B - Phase 3	The Greenway	472,381	10.
Truct b - I made o	Attached Green	213,770	4.
	Parks	285,400	6.
	Parcel Totals	1,354,426	31.
	n. #	207 200	0
	Buffer Amenity Center	297,390	6.8
Tract B - Phase 4	The Greenway	0	0.0
1,430 2 1 11400 4	Attached Green	90,010	2.
	Parks	0	0.
	Parcel Totals	387,400	8.8
	Duffor	0	0.
	Buffer Amenity Center	134,819	3.
Tract C - Phase 3	The Greenway	719,922	16.
Tracto Triadeo	Attached Green	175,095	4.
	Parks	98,720	2.
	Parcel Totals	1,128,556	25.
	Buffer	200 455	7.
	Amenity Center	309,455	0.
Tract C - Phase 4	The Greenway	245,915	5.0
	Attached Green	93,055	2.
	Parks	38,030	0.
	Parcel Totals	686,455	15.
	Buffer	1 205 005	32.0
	Amenity Center	1,395,665 124,215	2.5
Tract C - Phase 5	The Greenway	430,078	9.1
	Attached Green	0	0.0
	Parks	193,078	4.
		2,143,036	49.
	Parcel Totals		
		100.01-	
	Buffer	166,210	
Tract C - Dhase 6	Buffer Amenity Center	0	3.0 0.0
Tract C - Phase 6	Buffer Amenity Center The Greenway	0 36,570	0.
Tract C - Phase 6	Buffer Amenity Center	0	